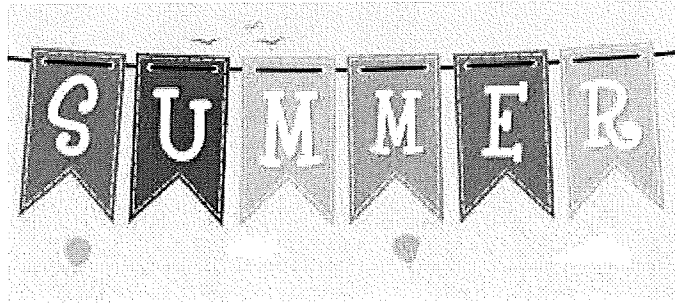


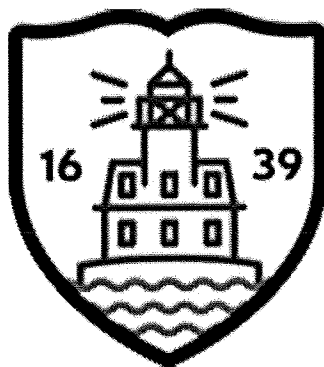
Fairfield Public Schools



Math Packet ANSWER KEY

For

Students Entering Sixth Grade



Grade 5 Practice Book



ANSWER KEY

Use after Unit One, Session 10

Page 1, Multiplication & Division Facts

- 1 0, 28, 48, 12, 36, 18, 56,
16, 48, 49, 32, 9, 21, 30,
40, 25, 64, 27, 36, 35, 42
- 2 7, 9, 8
7, 7, 7
- 3 a $2 \times 24 > 2 \times 16$
b $400 \div 80 < 400 \div 10$
c $77 - 20 > 67 - 20$
d $36 + 23 < 46 + 16$
e $458 - 129 = 358 - 29$
f (challenge) $3 \times 360 < 40 \times 30$
g (challenge) $50 \times 400 = 400 \times 50$
h (challenge) $2,500 \div 10 > 1,000 \div 5$
i (challenge) $24,000 \div 6 = 48,000 \div 12$

Page 2, Finding Factor Pairs

1

<p>example 15</p> <p>Factors of 15 <u>1, 15, 3, 5</u></p>	<p>a 18</p> <p>Factors of 18 <u>1, 2, 3, 6, 9, 18</u></p>
<p>b 24</p> <p>Factors of 24 <u>1, 2, 3, 4, 6, 8, 12, 24</u></p>	<p>c 28</p> <p>Factors of 28 <u>1, 2, 4, 7, 14, 28</u></p>

- 2 (challenge) 1, 2, 4, 5, 10, 20, 25, 50, 100

Page 3, Prime & Composite Numbers

1

a 5	prime	composite	1, 5
b 16	prime	composite	1, 2, 4, 8, 16
c 27	prime	composite	1, 3, 9, 27
d 31	prime	composite	1, 31
e 36	prime	composite	1, 2, 3, 4, 6, 9, 12, 18, 36
f 108	prime	composite	1, 2, 3, 4, 6, 9, 12, 18, 27, 36, 54, 108
g 126	prime	composite	1, 2, 3, 6, 7, 9, 14, 18, 21, 42, 63, 126

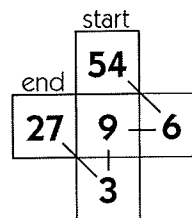
- 2 No. Students' explanations will vary. Example:
Prime numbers aren't always odd because 2 is an even number and it only has 2 factors: 1 and 2. Composite numbers aren't always even because 27 is a composite number with 4 factors: 1, 3, 9, and 27.

Page 4, Multiplication Practice

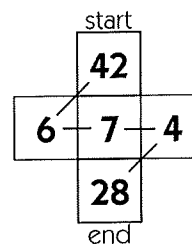
- 1 60, 80, 180, 240, 270, 200, 280,
150, 200, 400, 480, 300, 360, 490,
210, 630, 560, 480, 720, 720, 320
- 2 162, 145, 342
424, 648, 868, 2598

Page 5, Multiplication, Division & Secret Path Problems

- 1 32, 63, 0, 25, 18, 42, 8,
27, 18, 70, 35, 64, 27, 40,
81, 28, 54, 49, 56, 72, 96
- 2 6, 6, 5
4, 6, 3
- 3 a $54 \div 6 = 9$, $9 \times 3 = 27$



- b $42 \div 6 = 7$, $7 \times 4 = 28$





Use after Unit One, Session 10 (cont.)

Page 6, Multiples of 3 & 4

1 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: *The multiples of 3 go in pattern of odd, even, odd, even. There are 3 in the first row, 3 in the second row, and 4 in the third row. That pattern repeats in the fourth, fifth, and sixth row, and again in the seventh, eighth, and ninth row. The numbers form diagonals on the grid.*

2 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: *The multiples of 4 are all even. They all end in 0, 2, 4, 6, or 8. There are 2 in the first row and 3 in the second row. That pattern keeps repeating all the way down the grid. The numbers form straight lines on the grid.*
- 3 Students' responses will vary. Example: *Numbers that are multiples of both 3 and 4 are all even. They are all multiples of 12, like 12, 24, 36, 48, 60, and so on. They form diagonals on the grid.*

Page 7, Multiples of 6 & 7

1 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: *The multiples of 6 are all even. Every other multiple of 6 is also a multiple of 12. The numbers form diagonals on the grid. There is a pattern in the 1's place that goes 6, 2, 8, 4, 0; 6, 2, 8, 4, 0.*

2 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- b Students' responses will vary. Example: *The multiples of 7 go in a pattern of odd, even, odd, even. Every other multiple of 7 is also a multiple of 14. The numbers form steep diagonals on the grid.*
- 3 Students' responses will vary. Example: *Numbers that are multiples of both 6 and 7 are also multiples of 42. There are only two of them on the grid, 42 and 84.*
- 4 126, Students' explanations will vary. Example: *Since numbers that are multiples of both 6 and 7 have to be multiples of 42, the next one after 84 must be 126 because $84 + 42 = 126$.*



Use after Unit One, Session 10 (cont.)

Page 8, Multiplication & Multiples

- 30, 28, 36, 14, 63, 42, 48,
49, 28, 56, 48, 120, 84, 108
- (challenge) Students' explanations will vary.
Example: *6 is an even number. An even number plus an even number is always even. Any time you add 6 to a multiple of 6, you will always get an even number. 7 is an odd number. An odd plus an odd is even, so $7 + 7 = 14$. Then $14 + 7$ is an odd number, 21, because you've added an even and an odd number. When you add 7 to 21, you're adding two odds again, so you get an even number, 28. That is why multiples of 7 can have any digit in the ones place.*
- (challenge) Students' explanations will vary.
Example: *Any number that is a multiple of both 6 and 7 has to be a multiple of 42. 42 is even, so every multiple of 42 will also be even because even plus even is always even.*

Page 9, Addition & Subtraction Review

- 599, 801, 1343, 5,026
- 256, 197, 748, 2,235
- 70
 - 10
 - 36
 - 44
 - (challenge) 9
 - (challenge) 2
- $$\begin{array}{r} \boxed{4} \boxed{0} \boxed{2} \\ - \boxed{1} \boxed{7} \boxed{9} \\ \hline 2 \ 2 \ 3 \end{array}$$
 - $$\begin{array}{r} \boxed{5} \boxed{8} \boxed{2} \\ - \boxed{1} \boxed{7} \boxed{7} \\ \hline 4 \ 0 \ 5 \end{array}$$
 - $$\begin{array}{r} \boxed{4} \boxed{2} \boxed{4} \boxed{6} \\ - \boxed{1} \boxed{3} \boxed{2} \boxed{9} \\ \hline 2 \ 9 \ \boxed{1} \ 7 \end{array}$$
 - $$\begin{array}{r} 3 \ 0 \ \boxed{0} \ 8 \\ - \boxed{1} \ \boxed{2} \ \boxed{9} \ \boxed{6} \\ \hline \boxed{1} \ 7 \ 1 \ 2 \end{array}$$
 - $$\begin{array}{r} 5 \ 0 \ 6 \ \boxed{9} \ 3 \\ - \boxed{3} \ 7 \ \boxed{5} \ 5 \ 5 \\ \hline 1 \ \boxed{3} \ 1 \ 3 \ \boxed{8} \end{array}$$

Page 10, Run for the Arts

- Students' responses will vary. Example: *How many miles does Stephanie have to run to get more money than Emma?*
 - b & c** Stephanie is 11 years old. Her sister Emma is 9 years old. They are doing Run for the Arts at their school. Stephanie wants people to make pledges based on the number of miles she runs. Emma just wants people to pledge a certain amount of money. Their grandma pledged \$36 for Emma and \$8 per mile for Stephanie. Their uncle pledged \$18 for Emma and \$7 per mile for Stephanie. How many miles will Stephanie need to run to earn more money than Emma?
 - 4 miles. Students' work will vary.
 - Students' explanations will vary.

Use after Unit One, Session 21

Page 11, Order of Operations

- $$\begin{aligned} (9 + 3) \times (16 \div 8) \div 4 \\ = 12 \times 2 \div 4 \\ = 6 \end{aligned}$$
 - $$\begin{aligned} (365 + 35) \div 5 + 3 \\ = 400 \div 5 + 3 \\ = 80 + 3 \\ = 83 \end{aligned}$$
 - $$\begin{aligned} 36 \div 6 + 4 \times (27 \div 9) \\ = 36 \div 6 + 4 \times 3 \\ = 6 + 12 \\ = 18 \end{aligned}$$
 - $$\begin{aligned} (26 - 18) \times 5 \div 10 + 10 \\ = 8 \times 5 \div 10 + 10 \\ = 40 \div 10 + 10 \\ = 4 + 10 \\ = 14 \end{aligned}$$
- Note: Students only need to insert parentheses. Solutions are shown for your benefit.
 - $$\begin{aligned} 2 \times 18 - (5 + 15) \div 5 &= 32 \\ 36 - 20 \div 5 &= 32 \\ 36 - 4 &= 32 \\ 32 &= 32 \end{aligned}$$



Use after Unit One, Session 21 (cont.)

Page 11, Order of Operations (cont.)

- 2 b $(34 - 20) \div (4 + 3) = 2$
 $14 \div 7 = 2$
 $2 = 2$
- c $14 = 50 - (42 \div (3 + 4) \times 6)$
 $14 = 50 - (42 \div 7 \times 6)$
 $14 = 50 - 6 \times 6$
 $14 = 50 - 36$
 $14 = 14$
- d $21 = 7 + (16 - 8) \div 2 + (2 \times 25 \div 5)$
 $21 = 7 + 8 \div 2 + (50 \div 5)$
 $21 = 7 + 4 + 10$
 $21 = 11 + 10$
 $21 = 21$
- 3 (challenge) Student work will vary.
 Example: $3 + 2 \div 1$ and $0 + 2 \times 4$

Page 12, Understanding & Using Number Properties

1

a $(69 + 45) + 55$	$69 + (45 + 55)$	169	C, A, D
b 4×32	$4 \times (30 + 2)$	128	C, A, D
c $4 \times (16 \times 25)$	$16 \times (4 \times 25)$ or $(4 \times 25) \times 16$	1,600	C, A, D
d $(250 + 86) + 50$	$86 + (250 + 50)$ or $(250 + 50) + 86$	386	C, A, D

Page 13, Prime Factorization

1 Factor trees may vary.

a 18		1, 18 2, 9 3, 6
b 45		1, 45 3, 15 5, 9
c 72		1, 72 2, 36 3, 24 4, 18 6, 12 8, 9

- 2 1, 3, 9
 3 9

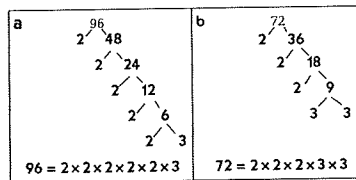
Page 14, Rounding Decimals

- 1 a 2.47 rounds down to 2.00
 b 33.29 rounds down to 33.00
 c 4.56 rounds up to 5.00
- 2 a 17.28 rounds up to 20.00

- b 35.67 rounds up to 40.00
 c 43.05 rounds down to 40.00
- 3 a Yes, he has enough money.
 b No, she does not have enough money.
 c Yes, he has enough money.

Page 15, More Prime Factorization

1 Factor trees may vary.



- 2 a 84, 96, 72
 b 84, 96, 72
 c 96, 72
 d 96, 72
- 3 a It is even.
 b Students' explanations will vary. Example: *12 is even. Every multiple of 12 will be even, because an even number plus an even number is always even. Since every multiple of 12 is even, any number that has 12 as a factor must be even.*
- 4 You can be certain that 1, 2, and 5 are also factors of that number. (Note: 1 is a factor of all numbers. The prime factorization of 10 is 2×5 , so 2 and 5 must be factors of any multiple of 10.)

Page 16, Rounding & Estimation

1

a 170	47	153	108	$50 + 150 = 200$ (153) $50 + 110 = 160$ (108)
b 190	83	96	132	$80 + 100 = 180$ (96) $80 + 130 = 210$ (132)
c 230	89	118	172	$90 + 120 = 210$ (118) $90 + 170 = 260$ (172)

- 2 a No. She will not finish the book. (second circle)
 b No. He will not have enough money (second circle)

Page 17, Time Calculations

- 1 60
 2 a 2 hours, 15 minutes. Students' work will vary.
 b 1 hour, 15 minutes. Students' work will vary.
 c 2 hours, 30 minutes. Students' work will vary.



Use after Unit One, Session 21 (cont.)

Page 17, Time Calculations (cont.)

- 3 1 hour, 45 minutes. Students' work will vary.
- 4 Miguel gets more sleep each night. Students' explanations will vary. Miguel gets 10 hrs. Carlos gets 9 hrs. 45 min.

Page 18, Roberta's Time & Money Problem

- 1 a Student responses will vary. Example: *What time does Roberta have to leave in the morning to make at least \$50 working for her grandma?*
- b & c Roberta's grandma asked her to help clean up her yard and garden on Saturday. She said she will pay Roberta \$8 per hour. Roberta's mom says she can go, but that she needs to be home by 4:30 pm. It takes Roberta 30 minutes to ride her bike the 5 miles to her grandma's house and 30 minutes to ride home. If she takes an hour break to eat lunch with her grandma, what time should she leave her home in the morning so that she can make at least \$50 and get home at 4:30?
- d Roberta needs to leave her home in the morning at 8:15 to make exactly \$50. If she leaves earlier, she can make more than \$50. Student work will vary.
- e Student explanations will vary.

Page 19, Division, Multiplication & Prime Factorization

- 1 9, 6, 5, 8, 7, 4, 3
- 2 a 972
b 1628
c 3,776
- 3 (challenge) The greatest factor of 96 (other than 96) is 48.

Page 20, Chin's Vegetable Patch

- 1 a Student responses will vary. Example: *How wide and how long should Chin make his vegetable patch to have the largest area?*
- b 9 feet long and 9 feet wide.

- 2 (challenge) Student responses will vary. Example: *Here is a list of all the rectangles you can make that have a perimeter of 36 feet. The area of each one is different, and they increase as the two dimensions get closer.*

$$1 \times 17 = 17 \text{ sq. ft.}$$

$$2 \times 16 = 32 \text{ sq. ft.}$$

$$3 \times 15 = 45 \text{ sq. ft.}$$

$$4 \times 14 = 56 \text{ sq. ft.}$$

$$5 \times 13 = 65 \text{ sq. ft.}$$

$$6 \times 12 = 72 \text{ sq. ft.}$$

$$7 \times 11 = 77 \text{ sq. ft.}$$

$$8 \times 10 = 80 \text{ sq. ft.}$$

$$9 \times 9 = 81 \text{ sq. ft.}$$

The area of each rectangle differs from the one below it by an odd number, starting with 15, then 13, 11, 9, 7, 5, 3, and finally 1 square foot. There isn't much difference between the area of an 8×10 rectangle and a 9×9 rectangle, but the 9×9 is still a little bit bigger.

Use after Unit Two, Session 10

Page 21, Secret Paths & Multiplication Tables

- 1 a $42 \div 7 = 6$, $6 \times 6 = 36$, $36 \div 4 = 9$, $9 \div 3 = 3$

start		
42	6	6
7	4	36
3	3	9
end		

- b $72 \div 9 = 8$, $8 \times 3 = 24$, $24 \div 6 = 4$, $4 \times 7 = 28$

end		
6	24	3
4	8	72
28	7	9
start		



Use after Unit Two, Session 10 (cont.)

Page 21, Secret Paths & Multiplication Tables (cont.)

- 2 a 54, 24, 42, 30, 18, 36, 48
 b 14, 63, 28, 49, 35, 21, 42, 56
 c 16, 72, 32, 56, 40, 24, 48, 64
 d (challenge) 60, 90, 110, 120, 180, 125, 135, 175

Page 22, Using Basic Facts to Solve Larger Problems

1	$8 \times 6 = 48$ $6 \times 8 = 48$ $48 \div 8 = 6$ $48 \div 6 = 8$	$80 \times 6 = 480$ $6 \times 80 = 480$ $480 \div 80 = 6$ $480 \div 6 = 80$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.
2	$4 \times 9 = 36$ $9 \times 4 = 360$ $36 \div 4 = 9$ $36 \div 9 = 4$	$40 \times 9 = 360$ $9 \times 40 = 360$ $360 \div 40 = 9$ $360 \div 9 = 40$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.
3	$3 \times 7 = 21$ $7 \times 3 = 21$ $21 \div 3 = 7$ $21 \div 7 = 3$	$30 \times 7 = 210$ $7 \times 30 = 210$ $210 \div 30 = 7$ $210 \div 7 = 30$	Student responses will vary. Student responses will vary. Student responses will vary. Student responses will vary.

Page 23, Multiplying by Multiples of 10

- 1 100; 1,000; 10,000; 200; 2,000; 400
 2 30, 6, 60, 3
 3 a 24; 2,400; Problems and solutions will vary.
 b 56; 560; Problems and solutions will vary.
 c 27; 270; Problems and solutions will vary.
 d 54; 5,400; Problems and solutions will vary.
 e 36; 360; Problems and solutions will vary.

Page 24, Multiplication Estimate & Check

- 1 a Estimate: $40 \times 40 = 1,600$; Solution: 1,554
 b Estimate: $70 \times 30 = 2,100$; Solution: 1,898
 c Estimate: $30 \times 20 = 600$; Solution: 627
 d Estimate: $80 \times 40 = 3,200$; Solution: 3,192
 e Estimate: $60 \times 40 = 2,400$; Solution: 2,464
 2 (challenge) 26 and 49

Page 25, Using the Standard Multiplication Algorithm

- 1 2,400; 3,200; 2,700; 3,600; 3,000; 4,000
 2 a 2,054
 b 2,752
 c 3,404
 d 3,526
 e 2,842

Page 26, The Soccer Tournament & the Video Arcade

- 1 282 players; Students' work will vary.
 2 \$5.25; Students' work will vary.

Page 27, Metric Conversions

- 1 a 100; 1,000
 b 100,000; 1,000,000
 2 a 100; 1,000
 b 400; 7000
 3 a 100; 1,000
 b 450; 3,500
 7 a (challenge) 1,000,000
 b (challenge) 4,500,000

Page 28, Riding the Bus & Reading for Fun

- 1 \$16.10; Student work will vary.
 2 Two hours and 55 minutes. Student work will vary.

Page 29, More Estimate & Check Problems

- 1 a Estimate: $40 \times 20 = 800$; Solution: 741
 b Estimate: $30 \times 40 = 1,200$; Solution: 1,064
 c Estimate: $90 \times 20 = 1,800$; Solution: 1,958
 d Estimate: $70 \times 50 = 3,500$; Solution: 3,692
 e Estimate: $60 \times 40 = 2,400$; Solution: 2,604
 2 (challenge) 19 and 33

Page 30, Race Car Problems

- 1 About 53 gallons of gas; Student work will vary.
 2 About 2,279 gallons of gas, more or less; Student work will vary.

Use after Unit Two, Session 20

Page 31, Multiplication & Division Problems

- 1 8, 2, 8, 9, 7
 9, 5, 7, 4, 7
 2 a $36 \div 12 = 3$ ($12 \times 3 = 36$ is also acceptable);
 3 cartons of 12 eggs
 b $42 \div 6 = 7$ ($6 \times 7 = 42$ is also acceptable);
 7 packs of soda
 2 c $72 \div 24 = 3$ ($24 \times 3 = 72$ is also acceptable);
 3 cases of soda
 d $27 \div 3 = 9$ ($3 \times 9 = 27$ is also acceptable);
 9 cans of tennis balls
 e $30 \div 10 = 3$ ($10 \times 3 = 30$ is also acceptable);
 3 hours



Use after Unit Two, Session 20 (cont.)

Page 32, Baking Cookies & Drying Clothes

- 5 batches ($4\frac{1}{2}$ batches is also acceptable.) Students' work will vary.
- \$1.00 Students' work will vary.

Page 33, Number Patterns

- 12, 15, ..., 24, 27, 30
 - 20, ..., 30, ..., 40, 45
 - 60, 75, ..., 105
- Both. Students' explanations will vary. Example: $3 \times 5 = 15$. Since 105 is a multiple of 15, it must be divisible by 3 and by 5.

3 a

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

b

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

- 24, 38, 72, and 96
- (challenge) 10 numbers. Students' explanations will vary. Example: 24 is the lowest common multiple of 6 and 8. So all the numbers that are multiples of 6 and 8 are multiples of 24. There are 10 multiples of 24 that are less than 250.

Page 34, Snacks for the Field Trip

- Students' responses will vary. Example: Which snack costs the least per item?
 - Mrs. Ramos is taking 32 students on a field trip. She wants to provide snacks for the students to eat. Granola bars come in boxes of 8 and cost \$2.50 per box. Apples come in bags of 4 and cost \$1.50 per bag. Packages of peanut butter crackers come in boxes of 16 for \$4.69. At these prices, which of the snacks has the cheapest price per item: granola bars, apples, or peanut butter crackers?
 - 8 apples for \$3.00; 8 granola bars for \$2.50; 8 packs of peanut butter crackers for \$2.30 - something; Peanut butter crackers are least expensive. Students' work will vary.
 - Students' responses will vary.

Page 35, Division on a Base-Ten Grid

- 28, 42, 140, 70, 280, 420
- Sketches may vary. Examples:

a $322 \div 14 = \underline{23}$

$$\begin{array}{r} 322 \\ - 280 \\ \hline 42 \\ - 42 \\ \hline 0 \end{array}$$

b $238 \div 14 = \underline{17}$

$$\begin{array}{r} 238 \\ - 140 \\ \hline 98 \\ - 70 \\ \hline 28 \\ - 28 \\ \hline 0 \end{array}$$

Page 36, Carla's Market & The Animal Shelter

- Carla should put her apples into bags of 4. ($139 \div 4 = 34 \text{ R } 3$; $139 \div 5 = 27 \text{ R } 4$) Students' work will vary.
- Jorge and Mrs. Johnson will be at the animal shelter twice on the very same day. Students' work will vary.



Use after Unit Two, Session 20 (cont.)

Page 37, Rounding & Division Practice

- 1 a Ones
- b Tens
- 2

Number	ex 382	a 437	b 264	c 578	d 843	e 235
Nearest Ten	380	440	260	580	840	240
Nearest Hundred	400	400	300	600	800	200

- 3 6, 4, 6, 9
60, 40, 60, 90
- 4 a $180 \div 3 = 60$; 60
- b $240 \div 6 = 40$; 40
- c $450 \div 5 = 90$; 90

Page 38, More Rounding & Estimation Practice

- 1 a $5 \times 30 = 150$, $150 \div 30 = 5$, $150 \div 5 = 30$
- b $6 \times 20 = 120$, $120 \div 20 = 6$, $120 \div 6 = 20$
- c $7 \times 40 = 280$, $280 \div 40 = 7$, $280 \div 7 = 40$
- 2 a Yes
- b No
- c No
- d Yes
- 3 (challenge) Bakery A offers the better deal on muffins. Students' explanations will vary. Example: *Bakery A sells 6 muffins for \$5.85, which means they each cost less than a dollar because $6 \times \$1.00$ would be \$6.00. Bakery B sells 8 muffins for \$8.25, which means they each cost a little more than a dollar because $8 \times \$1.00$ is \$8.00.*

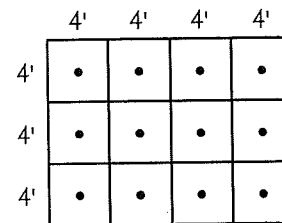
Page 39, Estimating Money Amounts

- 1 Choice 3, about \$7 in his pocket
- 2 Choice 1, She is right. She cannot afford to buy two more milkshakes.
- 3 Choice 2, Chris is wrong. The bike is more expensive than 5 months of bus passes.
- 4 Choice 2, a bag of cherries for \$2.00

Page 40, Kasey's Blueberry Bushes

- 1 a (challenge) Students' responses will vary. Example: *How many rows of plants should Kasey make, and how many plants should be in each row?*
- b (challenge) Kasey should plant 3 rows of bushes with 4 in each row. (4 rows of bushes with 3 in

each row is also acceptable.) Students' work will vary. Example: *Each plant needs a square of land that is 4' on each side. If you arrange 12 squares like that into a 3×4 rectangle, the rectangle is $12' \times 16'$. The perimeter of the rectangle is $(12 \times 2) + (16 \times 2)$. That's $24 + 32$, which is 56'.*



- c (challenge) Students' explanations will vary.

Use after Unit Three, Session 12

Page 41, Classifying Quadrilaterals

Figure	How many right angles?	How many pairs of congruent sides?	How many pairs of parallel sides?	Circle the word(s) that describe(s) the figure.
a	no right angles	2 pairs of congruent sides	2 pairs of parallel sides	trapezoid, rectangle, <u>rhombus</u> , square, <u>parallelogram</u>
b	no right angles	1 pair of congruent sides	1 pair of parallel sides	<u>trapezoid</u> , rectangle, rhombus, square, parallelogram
c	no right angles	2 pairs of congruent sides	2 pairs of parallel sides	trapezoid, rectangle, rhombus, square, <u>parallelogram</u>

Page 42, Drawing Quadrilaterals

- 1 Sketches will vary.

<p>ex square</p>	<p>a parallelogram that is not a rhombus or rectangle</p>
<p>b trapezoid</p>	<p>c rectangle that is not a square</p>



Use after Unit Three, Session 12 (cont.)

Page 42, Drawing Quadrilaterals (cont.)

- 2 (challenge) Students' responses and explanations will vary.

Page 43, Classifying Triangles

1

Triangle	Acute Angles	Right Angles	Obtuse Angles	Congruent Sides	What Kind? (circle as many as apply)
a	2 acute angles	0 right angles	1 obtuse angle	0 congruent sides	acute, right, <u>obtuse</u> , equilateral, isosceles, <u>scalene</u>
b	2 acute angles	1 right angle	0 obtuse angles	2 congruent sides	acute, right, <u>right</u> , obtuse, equilateral, <u>isosceles</u> , scalene

Page 44, Identifying & Drawing Triangles

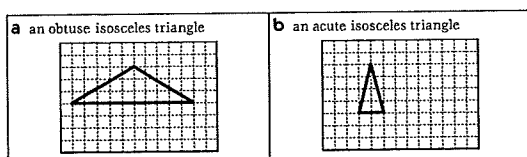
- 1 Fourth choice



- 2 Fourth choice



- 3 Students' drawings will vary. Examples:



- 4 (challenge) Students' explanations will vary. Example: *The sum of the angles in a triangle is always 180° . If you draw a triangle with one right angle, there are only 90 degrees left for the other two angles. Since an obtuse angle is greater than 90° , neither of the other two angles can possibly be obtuse. So, you cannot draw a right obtuse triangle.*

Page 45, Finding the Areas of Rectangles, Triangles & Parallelograms

- 1 a 12 square units
b 10 square units
- 2 a 2 square units
b 6 square units
- 3 a 6 square units
b 16 square units

Page 46, Area Story Problems

- 1 28 square units. Students' work will vary.
- 2 360 square yards. Students' work will vary.

Page 47, Finding the Areas of Quadrilaterals

- 1 3 square units
- 2 8 square units
- 3 4 square units
- 4 8 square units
- 5 9 square units

Page 48, Length & Perimeter

- 1 a $3\frac{1}{4}$ inches ($3\frac{2}{8}$ inches is also acceptable.)
b $5\frac{1}{8}$ inches
c $3\frac{7}{8}$ inches
- 2 There are three other rectangles with integral sides that have a perimeter of 16:
- 4×4 (Area = 16 square units)
 - 2×6 (Area = 12 square units)
 - 1×7 (Area = 7 square units)
- 3 (challenge) A circle that is 16 inches around has a greater area than a square with a perimeter of 16 inches. Students' explanations will vary.

Page 49, Naming Transformations

- 1 a Choice 3, flip
b Choice 1, slide
c Choice 3, flip
d Choice 2, turn

Page 50, Which Two Transformations?

- 1 a Choice 3, turn then slide
b Choice 1, flip then turn
c Choice 2, flip then slide
- 2 (challenge) Students' responses will vary.

Use after Unit Three, Session 22

Page 51, Finding the Areas of Parallelograms

- 1 a Base: 3, Height: 5, Area: $3 \times 5 = 15$ square units
b Base: 5, Height: 3, Area: $3 \times 5 = 15$ square units
c Base: 5, Height: 4, Area: $5 \times 4 = 20$ square units

Page 52, The Bulletin Board Problem

- 1 The area of each stripe was 6 square feet.
- 2 There were 6 square feet of paper left over as scraps.

Page 53, Finding the Area of a Triangle

- 1 a Base: 7, Height: 4, Area: $(7 \times 4) \div 2 = 14$ square units



Use after Unit Three, Session 22 (cont.)

Page 53, Finding the Area of a Triangle (cont.)

- 1 b Base: 6, Height: 3, Area: $(6 \times 3) \div 2 = 9$ square units
 c Base: 8, Height: 5, Area: $(8 \times 5) \div 2 = 20$ square units

Page 54, More Area Problems

- 1 Figures B and C
 2 a 6 square yards of bushes
 b 54 square feet of bushes

Page 55, Rita's Robot

- 1 One solution is shown on the chart below. There may be others.

Destination Coordinates	Spaces Moved	Running Total of Spaces Moved	Coins Collected	Running Total of Coins Collected
B, 4	5	5	12	12
D, 4	2	7	8	20
D, 10	6	13	16	36
E, 8	3	16	15	51
F, 5	4	20	14	65
F, 2	3	23	14	79
A, 0	7	30	0	79

Page 56, Faces, Edges & Vertices

- 1 a Vertices,
 b Edges,
 c Faces
 2 a 6, 12, 8, rectangular prism
 b 5, 8, 5, square pyramid or rectangular pyramid
 c 5, 9, 6, triangular prism
 d 5, 9, 6, triangular prism
 e 4, 6, 4, triangular pyramid
 f 8, 18, 12, hexagonal prism

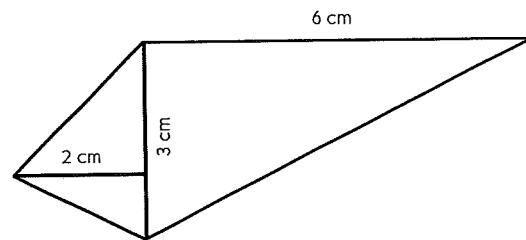
Page 57, Surface Area & Volume

- 1 a Surface Area = 52 square cm,
 Volume = 24 cubic cm
 b Surface Area = 48 square cm,
 Volume = 20 cubic cm
 c Surface Area = 64 square cm,
 Volume = 32 cubic cm
 2 (challenge) 45 cubic cm

Page 58, Measuring to Find the Area

- 1 a Area = 4 cm \times 7 cm; Area = 28 sq cm
 b Area = (5 cm \times 8 cm) \div 2; Area = 20 sq cm
 c Area = 6 cm \times 3 cm; Area = 18 sq cm

- 2 (challenge) Area = 12 sq cm Students' work will vary. Example:



$$\begin{array}{ll} 3 \times 6 = 18 & 18 \div 2 = 9 \\ 2 \times 3 = 6 & 6 \div 2 = 3 \\ 9 + 3 = 12 \text{ sq cm} & \end{array}$$

Page 59, Volume & Surface Area of Rectangular & Triangular Prisms

- 1 Volume = 32,000 cubic cm;
 Surface Area = 7,200 sq cm
 2 Volume = 12,000 cubic cm;
 Surface Area = 3,800 sq cm
 3 Volume = 18,000 cubic cm;
 Surface Area = 4,800 sq cm
 4 (challenge) Volume = 22,500 cubic cm;
 Surface Area = 5,700 sq cm

Page 60, Surface Area & Volume Story Problems

- 1 Present A takes more wrapping paper to cover. Students' work will vary. (The surface area of Present A is $2(8 \times 8) + 4(8 \times 10) = 448$ sq in; the surface area of Present B is $(9 \times 9) + (15 \times 9) + (9 \times 12) + 2((9 \times 12) \div 2) = 432$ sq in.)
 2 Tank A holds more water. Students' work will vary. (The volume of Tank A is $24 \times 12 \times 18 = 5,184$ cubic inches; the volume of Tank B is $(36 \times 24 \times 10) \div 2 = 4,320$ cubic inches.)

Use after Unit Four, Session 10

Page 61, Multiplication & Division Tables

- 1 a 60, 40, 90, 70, 50, 80, 30
 b 30, 20, 45, 35, 25, 40, 15
 2 a 9, 6, 5, 8, 7, 4, 3
 b 18, 12, 10, 16, 14, 8, 6
 3 Students' responses will vary. Example: 5 times a number is always half of 10 times the same number, like 5×6 is 30 and 10×6 is 60. A number divided by 5 is twice what the same number is divided by 10, like $60 \div 5 = 12$ and $60 \div 10 = 6$.



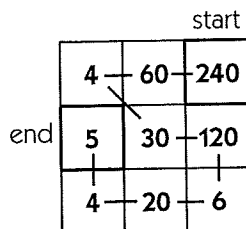
Use after Unit Four, Session 10 (cont.)

Page 62, Using Basic Fact Strategies to Multiply Larger Numbers

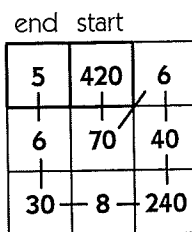
- 1 a 24, 48, 72, 240, 120, 480, 720, 360
 b 32, 64, 96, 320, 160, 640, 960, 480
 c 17, 34, 51, 170, 85, 340, 510, 255

Page 63, Multiplication Problems & Mazes

- 1 a 36, 54, 180, 90
 b 46, 69, 230, 115
 c 68, 102, 340, 170
 2 a Students' responses will vary.
 b Students' responses will vary.
 c Students' responses will vary.
 3 a $240 \div 60 = 4$; $4 \times 30 = 120$;
 $120 \div 6 = 20$; $20 \div 4 = 5$



- b $420 \div 70 = 6$; $6 \times 40 = 240$;
 $240 \div 8 = 30$; $30 \div 6 = 5$



Page 64, More Division Story Problems

- 1 8 hours; Students' work will vary.
 2 9 days, although she'll only have to read 17 pages the last day. Students' work will vary.
 3 9 bags, with 7 candies left over. Students' work will vary.
 4 (challenge) Students' responses will vary. Example: *The robins flew about 40 miles a day. This is a reasonable estimate because 80×40 is 3,200. The number of days they actually flew was 78, so 78×40 should be close to 3,000.*

Page 65, Which Box Holds the Most?

- 1 a You need to know the volume of each box.
 b Ebony should use Box B if she wants to send the most candy.
 (Box A Volume: $52 \times 22 \times 8 = 9,152$ cubic cm;
 Box B Volume: $22 \times 22 \times 22 = 10,648$ cubic cm;
 Box C Volume: $22 \times 17 \times 15 = 5,610$ cubic cm.)
 Students' work will vary.
 2 2,904 square cm; Students' work will vary.

Page 66, Using Multiplication Menus to Solve Division Problems

- 1 a 16
 b 32
 c 160
 d 80
 e 320
 f 240
 2 a 18
 b 29

Page 67, Divisibility Rules

- 1 Students' responses in the last column of the chart will vary.

a 987	$9 + 8 + 7 = 24$	Yes	No	No	7
b 540	$5 + 4 + 0 = 9$	Yes	Yes	Yes	2, 4, 5, 10
c 762	$7 + 6 + 2 = 15$	Yes	Yes	No	2
d 747	$7 + 4 + 7 = 18$	Yes	No	Yes	1
e 570	$5 + 7 + 0 = 12$	Yes	Yes	No	2, 5, 10
f 645	$6 + 4 + 5 = 15$	Yes	No	No	5
g 792	$7 + 9 + 2 = 18$	Yes	Yes	Yes	2, 4, 8

Page 68, Division with Menus & Sketches

- 1 a 19
 b 38
 c 190
 d 95
 e 380
 f 285
 2 a 32; Students' work will vary.
 b 24; Students' work will vary.
 3 a Yes, 456 is divisible by 3.
 b Yes, 456 is divisible by 6.
 c No



Use after Unit Four, Session 10 (cont.)

Page 69, Francine's Piece of Wood

- The middle piece of wood. Students' work will vary. (Volume of triangular prism 1: $(60 \times 40 \times 10) \div 2 = 12,000$ cubic inches; Volume of triangular prism 2: $(40 \times 30 \times 30) \div 2 = 18,000$ cubic inches; Volume of triangular prism 3: $(60 \times 40 \times 30) \div 2 = 36,000$ cubic inches.)
- (challenge) 4,800 square inches; Students' work will vary.

Page 70, Money & Miles

- 10 CD's; Students' work will vary.
- 6 weeks (5 weeks and 2 days is also acceptable.)

Use after Unit Four, Session 23

Page 71, Fractions & Mixed Numbers

1

ex $\frac{1}{4}$		a $\frac{3}{8}$	
b $\frac{1}{2}$		c $\frac{3}{4}$	

2

a $\frac{12}{8}$		$1\frac{3}{8}$ or $1\frac{1}{2}$
b $\frac{3}{2}$		$1\frac{1}{2}$
c $\frac{9}{8}$		$1\frac{1}{8}$

- A fraction is greater than 1 if the numerator is greater than the denominator.
- (challenge) The numerator must be greater than 16.

Page 72, Triangles & Tents

- 18 square feet; Students' work will vary.
 - 360 square meters; Students' work will vary.
 - 25 square inches; Students' work will vary.
- They will need 60 square feet of fabric; Students' work will vary.

Page 73, Equivalent Fractions on a Geoboard

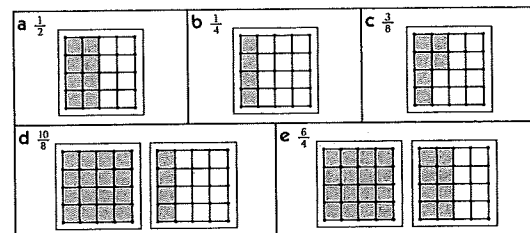
1		$\frac{1}{2}, \frac{2}{4}, \frac{4}{8}, \frac{8}{16}$	$\frac{1}{2} < \frac{5}{8}$
2		$\frac{3}{4}, \frac{6}{8}, \frac{12}{16}$	$\frac{3}{4} > \frac{1}{2}$
3		$\frac{5}{8}, \frac{10}{16}$	$\frac{5}{8} < \frac{3}{4}$
4		$1\frac{3}{8}, \frac{16}{16}, \frac{11}{8}, \frac{22}{16}$	$1\frac{3}{8} < 1\frac{1}{2}$

Page 74, Metric Length, Area & Volume

- 1,000 meters
 - 3,000 meters
- 60 laps; Students' work will vary.
- 10 times; Students' work will vary.
- (challenge) 100 centimeters
 - (challenge) 10,000 square centimeters
 - (challenge) 1,000,000 cubic centimeters

Page 75, Comparing Fractions

- Shading may vary. Examples shown below.



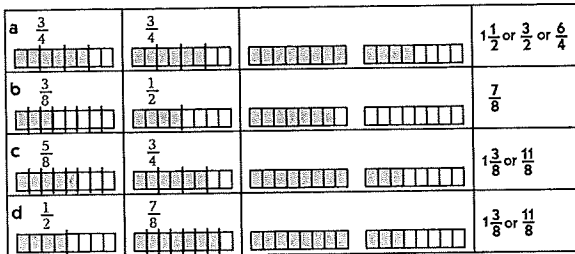
- $\frac{6}{4} = 1\frac{1}{2}$
 - $\frac{3}{8} < \frac{3}{4}$
 - $\frac{10}{8} < 1\frac{1}{2}$
 - $\frac{6}{8} < \frac{6}{4}$
 - $\frac{3}{8} > \frac{1}{4}$
- (challenge) Any number greater than 18
 - (challenge) 24
 - (challenge) Any number greater than 4



Use after Unit Four, Session 23 (cont.)

Page 76, Adding Fractions

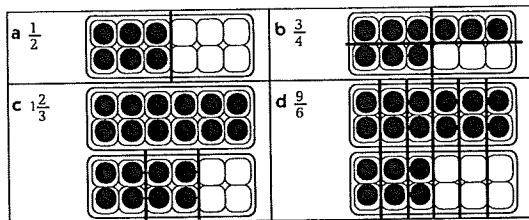
1



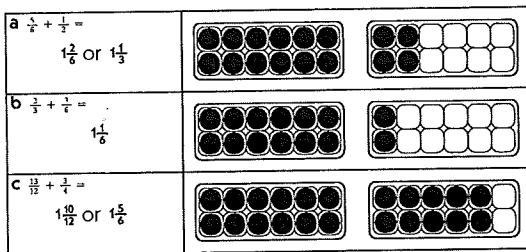
- The sum must be greater than 1.
- The sum must be less than 1.

Page 77, Egg Carton Fractions

1 Shading may vary. Examples shown below.



2 Shading may vary. Examples shown below.



- $\frac{6}{10} + \frac{11}{10} > 1$
 - $\frac{11}{10} + \frac{7}{6} > 2$
 - $\frac{1}{12} + \frac{3}{14} < 1$

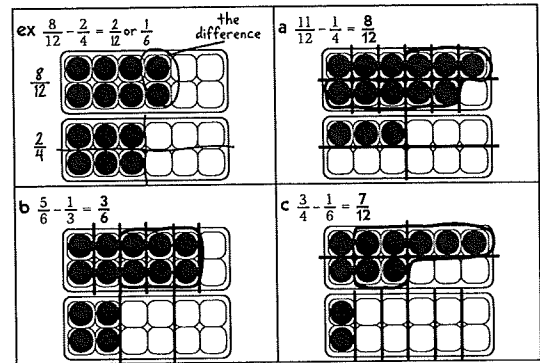
Page 78, Fraction Story Problems

- $2\frac{1}{4}$ miles; Students' work will vary.
- $4\frac{5}{8}$ pounds of fruit; Students' work will vary.

Page 79, Division & Fraction Practice

- 17 R 5; Students' work will vary.
 - 22 R 8; Students' work will vary.

2



Page 80, More Fraction Story Problems

- $2\frac{1}{12}$ pounds of packaging; Students' work will vary.
- $\frac{7}{8}$ of a mile; Students' work will vary.

Use after Unit Five, Session 11

Page 81, Multiplication & Division Review

- 540, 360, 300, 420, 1200, 2400, 1800
360, 240, 200, 280, 800, 1600, 1200
- 30, 2, 7, 50, 60, 9, 80
- 1,566; 14,432; 8,448;
8,673; 19,520; 14,898; 71,982

Page 82, Thinking About Divisibility

1 A number is divisible by 3 if the sum of its digits is divisible by 3.	a	(117) 409 (423) 6,151 (3,213)
2a Finish the rule: A number is divisible by 5 if... it has a 0 or 5 in the ones place.	b	(205) 452 (600) (2,365) 7,004
3 A number is divisible by 6 if the sum of its digits is divisible by 3 and it is even.	a	(132) (270) (588) (2,706) 3,512
4 A number is divisible by 9 if the sum of its digits is divisible by 9.	a	(225) (324) 965 (1,809) 2,584
5a Finish the rule: A number is divisible by 10 if... it has a 0 in the ones place.	b	208 (700) (810) 2,304 (8,430)

Page 83, Products & Secret Paths

- 14, 51; Students' work will vary.
 - 24, 42; Students' work will vary.
 - 33, 67; Students' work will vary.
 - 42, 65; Students' work will vary.



Use after Unit Five, Session 11 (cont.)

Page 83, Products & Secret Paths (cont.)

- 2 a $160 \div 80 = 2$; $2 \times 50 = 100$;
 $100 \div 10 = 10$; $10 \times 4 = 40$

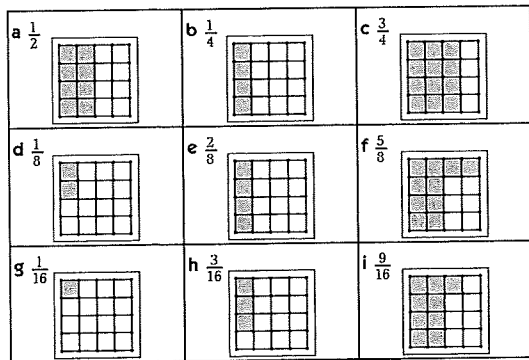
	end	start
4	40	160
10	80	2
10	100	50

- b $540 \div 9 = 60$; $60 \times 3 = 180$;
 $180 \div 90 = 2$; $2 \times 7 = 14$

	end	start
14	540	9
7	60	3
2	90	180

Page 84, Coloring & Comparing Fractions

- 1 Shading may vary. Examples shown below.



- 2 a $\frac{1}{4} = \frac{2}{8}$
 b $\frac{3}{4} > \frac{5}{8}$
 c $\frac{3}{16} < \frac{1}{4}$
 d $\frac{1}{2} < \frac{9}{16}$
 e $\frac{5}{8} > \frac{9}{16}$
- 3 a $\frac{1}{2} < \frac{9}{16}$
 b $\frac{1}{4} > \frac{3}{24}$
 c $\frac{9}{18} = \frac{1}{2}$

Page 85, The Garage Roof & The Parking Lot

- 1 600 square feet; Students' work will vary.
 2 a 24 square meters
 b 15 square inches
 c 52 square centimeters
 3 520 square yards; Students' work will vary.

Page 86, Time Problems

- 1 5 days (4 days and 30 more minutes on the fifth day is also acceptable.) Students' work will vary.
 2 $6\frac{1}{2}$ hours each week; Students' work will vary.
 3 2 hours and 45 minutes; Students' work will vary.

Page 87, Amanda's Height Graph

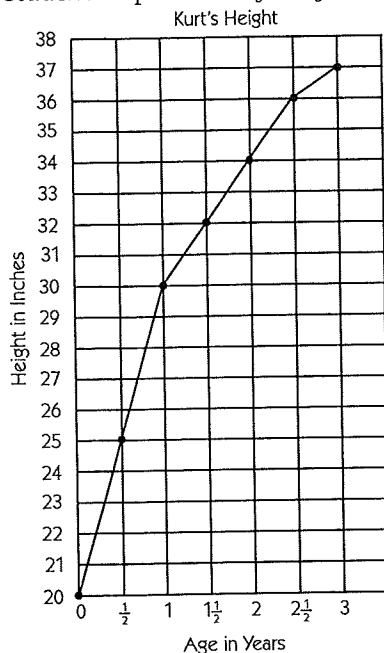
- 1 Amanda has been getting taller. Students' explanations will vary. Example: *The line on the graph keeps going up; it never goes down.*
- 2 Between 8 and 9 years old.
- 3 No, Amanda grew different amounts some years. Students' explanations will vary. Example: *The number of inches changes from one year to the next. Amanda grew 4 inches the first year on the graph. She grew 3 inches the next year and 2 inches the year after that.*
- 4 Students' responses will vary. Example: *I think Amanda will be about 5 feet tall by the time she is 13. When she was 10, she was 54 inches tall. When she was 11, she was 56 inches, so she grew 2 inches that year. Even if she only grows 2 inches a year for the next 2 years, that will be 60 inches, which is 5 feet.*
- 5 Students' responses will vary. Example: *I think the growth line would keep going up at least 2 inches a year until she was 15 or 16. After that, it would go up very slowly or maybe not at all, so you'd see a steep line between ages 5 and 15 or 16, and then it would get almost flat because people don't grow any taller after they get to be about 16.*



Use after Unit Five, Session 11 (cont.)

Page 88, Kurt's Height Graph

- 1 Student responses may vary. Example:



- 2 Students' responses will vary. Example: Kurt grew faster in his first year than in the next two years. He grew 5 inches every 6 months for the first year. Then he grew 2 inches every 6 months until he turned $2\frac{1}{2}$. Between $2\frac{1}{2}$ and 3, he only grew 1 inch, so it seems like he's slowing down.
- 3 Students' responses will vary. Example: Kurt grew really fast in the first year, and then he slowed down in the next two years.

Page 89, Prime Factorization Review

1

a 24	$ \begin{array}{c} 24 \\ \swarrow \searrow \\ 2 \quad 12 \\ \quad \swarrow \searrow \\ \quad 2 \quad 6 \\ \quad \quad \swarrow \searrow \\ \quad \quad 2 \quad 3 \end{array} $	1, 24 2, 12 3, 8 4, 6
b 48	$ \begin{array}{c} 48 \\ \swarrow \searrow \\ 2 \quad 24 \\ \quad \swarrow \searrow \\ \quad 2 \quad 12 \\ \quad \quad \swarrow \searrow \\ \quad \quad 2 \quad 6 \\ \quad \quad \quad \swarrow \searrow \\ \quad \quad \quad 2 \quad 3 \end{array} $	1, 48 2, 24 3, 16 4, 12 6, 8
c 78	$ \begin{array}{c} 78 \\ \swarrow \searrow \\ 2 \quad 39 \\ \quad \swarrow \searrow \\ \quad 3 \quad 13 \end{array} $	1, 78 2, 39 3, 26 6, 13

- 2 1, 2, 3, 6
3 6

Page 90, Which Bag of Candy?

- 1 Lemon Sours; students' work will vary.
2 16 candies

Use after Unit Five, Session 19

Page 91, Square Inches, Square Feet & Square Yards

- 1 a 29 square yards; students' work will vary.
b (challenge) 261 square feet; students' work will vary.
2 a 900 square inches; students' work will vary.
b (challenge) $6\frac{1}{4}$ square feet; students' work will vary.

Page 92, The Frozen Yogurt Problem

- 1 a Students' responses will vary. Example: *How many tubs of frozen yogurt do the kids need for parents' night at their school?*
b & c The fourth and fifth graders are hosting a special night for their parents at school, and they want to serve frozen yogurt. Altogether there will be 95 students, 5 teachers, and 1 principal. Six students are not coming. Fifty-two students will bring 2 parents, and 43 students will bring 1 parent with them. Each tub of frozen yogurt serves 14 people. How many tubs of frozen yogurt will they need to have enough for everyone?
d 18 tubs of frozen yogurt; students' work will vary.
e Students' answers will vary.

Page 93, The Homework Survey

- 1 14 middle-school students
2 3 high-school students
3 12 high-school students
4 Overall, high-school students spend more time on homework each night. Students' explanations will vary. Example: *The mode and the median for the middle-school students is 1 hour a night. The mode and the median for the high-school students is $1\frac{1}{2}$ hours a night. If you count up all the hours, the whole group of middle-school students spends 26.5 hours each night on homework, and the high-school students spend 46 hours each night. The average amount of time is a little less than 1 hour for the middle-school students and about $1\frac{1}{2}$ hours a night for high-school students.*



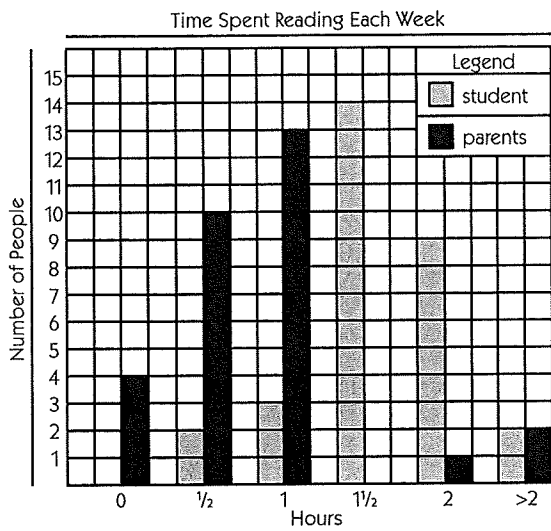
Use after Unit Five, Session 19 (cont.)

Page 93, The Homework Survey (cont.)

- (challenge) Students' responses will vary. The middle-school data is clustered tightly around half an hour and 1 hour, while there is more variation in the high-school data. It would be reasonable to say that it's easier to use the data to make estimates about *any* middle-school student than it is to make estimates about *any* high-school student.

Page 94, The Fifth-Grade Reading Survey

- Students' responses will vary. Example: *Most parents read 1 hour or less each week. Most students read 1½ hours or more each week.*
- Students' graphs may vary somewhat. Example:



- Students' responses will vary. Example: *You can see that students read way more than parents each week.*

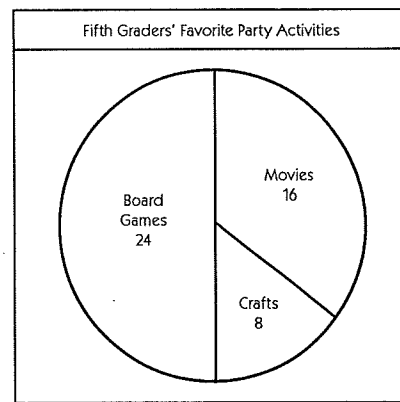
Page 95, Reading & Interpreting a Circle Graph

- Soda
- Milk
- Less than half of the students prefer soda. Students' explanations will vary. Example: *One way to tell that less than half of the students prefer soda is because the soda section takes up less than half the circle. Another way to tell is because the soda section says 22, and 22 is less than half of 48.*

- Students' responses will vary. Example: *They should serve 24 bottles of water, 20 bottles of juice, and 8 bottles of milk. That adds up to 52 bottles, but leaves a few extra in case someone changes their mind. Some kids will probably pick juice because it's sweet, but some of them might pick water. Maybe a couple of them will switch to milk, but probably not very many.*

Page 96, Constructing & Interpreting a Circle Graph

- Students' responses will vary. Example: *The most popular choice is board games.*
- Students' work will vary. Example:



- Students' responses will vary. Example: *Half the kids voted for board games. A third of them voted for a movie, and only a sixth voted for crafts.*

Page 97, Classifying Triangles & Quadrilaterals

- - Students' responses will vary. Example: *Because every triangle in the group has 3 sides that are different lengths.*
 - Scalene triangle
- - Students' responses will vary. Example: *Because every quadrilateral in the group has 4 congruent sides.*
 - Rhombus



Use after Unit Five, Session 19 (cont.)

Page 98, The Robot's Path

- 1 A quadrilateral or rectangle
- 2 The dimensions of the rectangle could be 1 and 6, 2 and 5, or 3 and 4. (The rectangle with dimensions 3 and 4 is the only one that allows the robot to collect 170 gold pieces.)
- 3 A5, D5, and D1

Page 99, Division Estimate & Check

1 $396 \div 17$	$17 \times 10 = 170$, $17 \times 20 = 340$, $17 \times 5 = 85$, $17 \times 2 = 34$	The answer will be less than <u>25</u> and greater than <u>20</u> .	Students' responses will vary.	23 R5
2 $275 \div 13$	$13 \times 10 = 130$, $13 \times 20 = 260$, $13 \times 5 = 65$, $13 \times 2 = 26$	The answer will be less than <u>22</u> and greater than <u>20</u> .	Students' responses will vary.	21 R2

Page 100, The Book Problem

- 1 a Students' responses will vary. Example: *How much money can Mrs. Suarez spend on each book if she buys one for each student in her class?*
- b \$6.25; Students' work will vary.
- c Students' responses will vary. Example: *Yes. I know it has to be a little more than \$5.00 each because $24 \times 5 = 120$, and she has \$150. If you add another 24 to 120, you can see that the answer should be just a little over \$6.00 per book.*

Use after Unit Six, Session 7

Page 101, Simplifying Fractions

- 1 a 1, 2, 4
- b 1, 2, 4, 8
- c 1, 3
- d 1, 2, 3, 6
- e 1, 2, 3, 4, 6, 12

2

a $\frac{4}{6}$	1, 2, 4	1, 2, 3, 6	2	$\frac{4 \div 2}{6 \div 2} = \frac{2}{3}$	 $\frac{4}{6} = \frac{2}{3}$
b $\frac{3}{12}$	1, 3	1, 2, 3, 4, 6, 12	3	$\frac{3 \div 3}{12 \div 3} = \frac{1}{4}$	 $\frac{3}{12} = \frac{1}{4}$

Page 102, Using the Greatest Common Factor to Simplify Fractions

1

a $\frac{14}{16}$	1, 2, 7, 14	1, 2, 4, 8, 16	2	$\frac{14 \div 2}{16 \div 2} = \frac{7}{8}$	$\frac{7}{8}$
b $\frac{16}{21}$	1, 2, 4, 8, 16	1, 3, 7, 21	1	$\frac{16 \div 1}{21 \div 1} = \frac{16}{21}$	$\frac{16}{21}$
c $\frac{27}{36}$	1, 3, 9, 27	1, 2, 3, 4, 6, 9, 12, 18, 36	9	$\frac{27 \div 9}{36 \div 9} = \frac{3}{4}$	$\frac{3}{4}$
d $\frac{15}{36}$	1, 3, 5, 15	1, 2, 3, 4, 6, 9, 12, 18, 36	3	$\frac{15 \div 3}{36 \div 3} = \frac{5}{12}$	$\frac{5}{12}$

- 2 a $\frac{2}{7}, \frac{12}{42}$ ($\frac{18}{63}$ and other equivalent fractions also acceptable)
- b $\frac{1}{5}, \frac{6}{30}$ ($\frac{9}{45}$ and other equivalent fractions also acceptable)
- c $\frac{14}{24}, \frac{21}{36}$ ($\frac{28}{48}$ and other equivalent fractions also acceptable)

Page 103, Rewriting & Comparing Fractions

- 1 $\frac{11}{18}$ is greater than $\frac{7}{12}$
- 2 $\frac{11}{18}$ is exactly $\frac{1}{36}$ greater than $\frac{7}{12}$
- 3 $\frac{43}{36}, \frac{17}{36}$

Page 104, Using the Least Common Multiple to Compare Fractions

- 1 a The least common multiple of 8 and 12 is 24.
Multiples of 12: 12, 24
Multiples of 8: 8, 16, 24
- b The least common multiple of 6 and 15 is 30.
Multiples of 15: 15, 30
Multiples of 6: 6, 12, 18, 24, 30
- c The least common multiple of 6 and 14 is 42.
Multiples of 14: 14, 28, 42
Multiples of 6: 6, 12, 18, 24, 30, 36, 42



Use after Unit Six, Session 7 (cont.)

Page 104, Using the Least Common Multiple to Compare Fractions (cont.)

2

a	$\frac{5}{8}$ and $\frac{9}{12}$	$\frac{5 \times 3}{8 \times 3} = \frac{15}{24}$	$\frac{9 \times 2}{12 \times 2} = \frac{18}{24}$	$\frac{15}{24} < \frac{18}{24}$ so $\frac{5}{8} < \frac{9}{12}$
b	$\frac{4}{6}$ and $\frac{12}{15}$	$\frac{4 \times 5}{6 \times 5} = \frac{20}{30}$	$\frac{12 \times 2}{15 \times 2} = \frac{24}{30}$	$\frac{20}{30} < \frac{24}{30}$ so $\frac{4}{6} < \frac{12}{15}$
c	$\frac{5}{6}$ and $\frac{11}{14}$	$\frac{5 \times 7}{6 \times 7} = \frac{35}{42}$	$\frac{11 \times 3}{14 \times 3} = \frac{33}{42}$	$\frac{35}{42} > \frac{33}{42}$ so $\frac{5}{6} > \frac{11}{14}$

Page 105, Finding Equivalent Fractions

- $\frac{3}{5}$ and $\frac{18}{30}$ ($\frac{27}{45}$ and other equivalent fractions also acceptable)
 - $\frac{2}{3}$ and $\frac{8}{12}$ ($\frac{12}{18}$ and other equivalent fractions also acceptable)
 - $\frac{5}{6}$ and $\frac{30}{36}$ ($\frac{45}{54}$ and other equivalent fractions also acceptable)
- $\frac{1}{3}$, $\frac{8}{24}$, $\frac{12}{36}$
 - $\frac{6}{8}$, $\frac{9}{12}$, $\frac{15}{20}$, $\frac{30}{40}$
 - $\frac{6}{30}$, $\frac{1}{5}$, $\frac{9}{45}$
- Students' responses will vary. Example: *You can divide the numerator and denominator by the same number. You can also multiply the numerator and denominator by the same number.*

Page 106, Rewriting & Comparing More Fractions

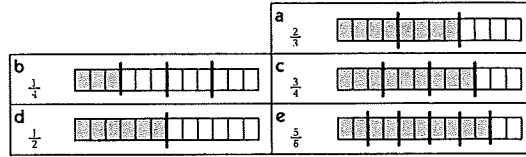
- The least common multiple of 6 and 7 is 42.
Multiples of 6: 6, 12, 18, 24, 30, 36, 42
Multiples of 7: 7, 14, 21, 28, 35, 42
 - The least common multiple of 9 and 12 is 36.
Multiples of 9: 9, 18, 27, 36
Multiples of 12: 12, 24, 36
 - The least common multiple of 9 and 15 is 45.
Multiples of 9: 9, 18, 27, 36, 45
Multiples of 15: 15, 30, 45

2

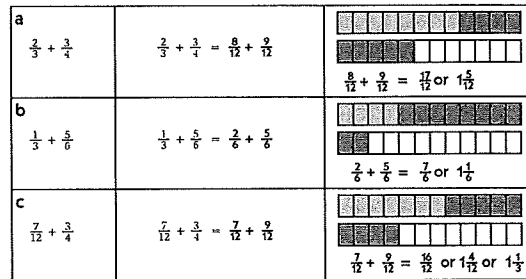
a	$\frac{4}{6}$ and $\frac{5}{7}$	$\frac{4 \times 7}{6 \times 7} = \frac{28}{42}$	$\frac{5 \times 6}{7 \times 6} = \frac{30}{42}$	$\frac{28}{42} < \frac{30}{42}$ so $\frac{4}{6} < \frac{5}{7}$
b	$\frac{7}{9}$ and $\frac{9}{12}$	$\frac{7 \times 4}{9 \times 4} = \frac{28}{36}$	$\frac{9 \times 3}{12 \times 3} = \frac{27}{36}$	$\frac{28}{36} > \frac{27}{36}$ so $\frac{7}{9} > \frac{9}{12}$
c	$\frac{8}{9}$ and $\frac{13}{15}$	$\frac{8 \times 5}{9 \times 5} = \frac{40}{45}$	$\frac{13 \times 3}{15 \times 3} = \frac{39}{45}$	$\frac{40}{45} > \frac{39}{45}$ so $\frac{8}{9} > \frac{13}{15}$

Page 107, Adding Fractions

1



2



Page 108, Adding Fractions & Mixed Numbers

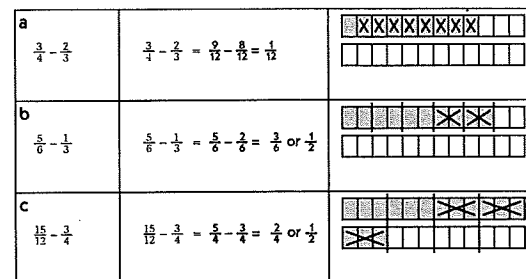
1 Solutions may vary.

a	$\frac{4}{6} \div \frac{2}{2} = \frac{2}{3}$	b	$\frac{12}{15} \div \frac{3}{3} = \frac{4}{5}$
c	$\frac{12}{18} \div \frac{6}{6} = \frac{2}{3}$	d	$\frac{8}{12} \div \frac{4}{4} = \frac{2}{3}$
e	$\frac{4}{12} \div \frac{4}{4} = \frac{1}{3}$		

- $\frac{3}{4} + \frac{2}{8} = \frac{3}{4} + \frac{1}{4}$; $\frac{3}{4} + \frac{1}{4} = \frac{4}{4}$ and $\frac{4}{4} = 1$
 - $\frac{6}{8} + \frac{9}{12} = \frac{3}{4} + \frac{3}{4}$; $\frac{3}{4} + \frac{3}{4} = \frac{6}{4}$ and $\frac{6}{4} = 1\frac{2}{4}$ ($1\frac{1}{2}$ is also acceptable)
 - $3\frac{6}{12} + 4\frac{1}{2} = 3\frac{6}{12} + 4\frac{6}{12}$; $3\frac{6}{12} + 4\frac{6}{12} = 7\frac{12}{12}$ and $7\frac{12}{12} = 8$
 - $1\frac{5}{8} + 2\frac{3}{4} = 1\frac{5}{8} + 2\frac{6}{8}$; $1\frac{5}{8} + 2\frac{6}{8} = 3\frac{11}{8}$ and $3\frac{11}{8} = 4\frac{3}{8}$

Page 109, Fraction Subtraction

1 Solutions may vary.



- $\frac{4}{5}$
 - $592\frac{17}{18}$



Use after Unit Six, Session 7 (cont.)

Page 110, More Fraction Subtraction

- $1\frac{4}{8}$ ($1\frac{1}{2}$ is also acceptable)
 - $2\frac{3}{6}$ ($2\frac{1}{2}$ is also acceptable)
 - $2\frac{1}{8}$
 - $4\frac{2}{3}$
- $\frac{17}{12}$
 - $\frac{17}{6}$
 - $\frac{13}{4}$
 - $\frac{14}{3}$
- Solutions may vary.
 - $\frac{7}{4} - \frac{2}{4} = \frac{5}{4}$ ($1\frac{1}{4}$ is also acceptable)
 - $\frac{30}{24} - \frac{9}{24} = \frac{21}{24}$; $\frac{21}{24} = \frac{7}{8}$
 - $\frac{2^9}{2^4} - \frac{1^8}{2^4} = \frac{1^1}{2^4}$
 - $3\frac{10}{16} - 1\frac{12}{16} = \frac{30}{16}$; $\frac{30}{16} = 1\frac{14}{16}$ or $1\frac{7}{8}$

Use after Unit Six, Session 19

Page 111, Modeling Decimals

- 1.004
 - 2.316
 - 1.07

Page 112, Decimal Sums & Differences

- $1.236 + 1.07 = 2.306$
- $1.236 + 1.7 = 2.936$
- $1.236 + 1.007 = 2.243$
- $2.131 - 1.004 = 1.127$
- $2.131 - 1.04 = 1.091$
- $2.131 - 1.4 = 0.731$

Page 113, Using Models to Add & Subtract Decimals

- Less than 3. Students' explanations will vary.
Example: *Because $1 + 1 = 2$, and $.009 + .762$ is less than 1 more.*
- Greater than 3. Students' explanations will vary.
Example: *Because $1 + 1 = 2$, and $.5 + .5$ is already 1 more, but there are also some extra hundredths and thousandths.*
- Less than 1. Students' explanations will vary.
Example: *Because you have to subtract 2 tenths, and you have less than 1 tenth. You'll have to split the unit mat into tenths, and when you take 2 tenths away, it will leave less than 1.*

Page 114, Adding & Subtracting Decimals

- 7.357; 2.479; 12.222; 6.223; 3.919; 4.631
- 1.893; 1.331; 1.86; 3.131; 2.579; 4.006
- $1.26 + 0.773$ and $1.502 + 0.6$

Page 115, Decimal Addition & Subtraction

- Students' responses will vary.
- 16.419; 18.248; 21.08; 11.482
8.512; 12.405
- 2.98; 2.212; 4.545; 3.173
7.165; 0.948

Page 116, Decimal Story Problems

- Fifty-two hundredths of a second or .52 seconds
 - Bolt ran the race more than a half-second faster than the second-place winner. Students' explanations will vary. Example: *Half is fifty hundredths; Bolt won by 2 hundredths more than half a second.*
- More than half as long.
 - Students' explanations will vary. Example: *Yes, because half of 19.30 is 9.65, so 9.69 is 4 hundredths of a second more than half as long.*

Page 117, Finding the Common Denominator

- $\frac{1}{2}$
 - $\frac{3}{5}$
 - $\frac{5}{6}$
 - $\frac{2}{3}$
 - $\frac{2}{3}$
- Students' work will vary. Common denominators are listed below.
 - $\frac{3}{12}$ and $\frac{9}{12}$ or $\frac{1}{4}$ and $\frac{3}{4}$
 - $\frac{21}{24}$ and $\frac{20}{24}$
 - $\frac{14}{30}$ and $\frac{20}{30}$

Page 118, Fraction Estimate & Check

- Students' work will vary. Sum or difference listed below
- $1\frac{4}{12}$ or $1\frac{1}{3}$
 - $2\frac{2}{8}$ or $2\frac{1}{4}$
 - $1\frac{1}{24}$
 - $\frac{1}{2}$
 - $\frac{1}{12}$



Use after Unit Six, Session 19 (cont.)

Page 119, Lauren's Puppy

- $\frac{3}{16}$ of a pound; students' work will vary.
 - $5\frac{1}{2}$ pounds; students' work will vary.
- Andre's puppy weighs 4 pounds

Page 120, Rachel & Dimitri's Trip to the Store

- Dimitri spent \$.07, or 7 cents, more than Rachel. Students' work will vary.
- Yes. He had \$.62 left from his \$5 bill and Rachel only needs \$0.24.

Use after Unit Seven, Session 8

Page 121, Order of Operations Review

1

a $451 = 463 - 180 \div (3 \times (2 + 3))$ $463 - 180 \div (3 \times (2 + 3)) = 463 - 180 \div (3 \times 5)$ $463 - 180 \div (3 \times 5) = 463 - 180 \div 15$ $463 - 180 \div 15 = 463 - 12$ $463 - 12 = 451$	b $(249 - 192) \div 3 \times 14 = 266$ $(249 - 192) \div 3 \times 14 = 57 \div 3 \times 14$ $57 \div 3 \times 14 = 19 \times 14$ $19 \times 14 = 266$
c $57 = 36 + 14 \times (182 - 164) \div 12$ $36 + 14 \times (182 - 164) \div 12 = 36 + 14 \times 18 \div 12$ $36 + 14 \times 18 \div 12 = 36 + 252 \div 12$ $36 + 252 \div 12 = 36 + 21$ $36 + 21 = 57$	d $(9 \div 3 + 213) - 72 \div 4 = 198$ $(9 \div 3 + 213) - 72 \div 4 = (3 + 213) - 72 \div 4$ $(3 + 213) - 72 \div 4 = 216 - 72 \div 4$ $216 - 72 \div 4 = 216 - 18$ $216 - 18 = 198$

- $3 \times 9 + (18 + 36) \div 9 = 33$
 - $2 = 140 \div (2 + 12) - 4 \times 2$

Page 122, Reviewing Three Number Properties

- Answers may vary.

a 12×23	$(10 \times 23) + (2 \times 23)$	276	C A D
b $(50 \times 73) \times 2$	$73 \times (50 \times 2)$	7,300	C A D
c $15 + (135 + 86)$	$(15 + 135) + 86$	236	C A D
d 35×8	$(30 \times 8) + (5 \times 8)$	280	C A D
e $25 \times (4 \times 329)$	$(25 \times 4) \times 329$	32,900	C A D
f $(34 \times 50) \times 20$	$34 \times (50 \times 20)$	34,000	C A D

Page 123, Finding Patterns & Solving Problems

- 46, 55, 64, Explanation: add 9 more each time
 - 142, 131, 120, Explanation: subtract 11 each time
 - 243, 729, 2187, Explanation: multiply by 3 each time
 - 32, 64, 128, Explanation: double the number each time
- (challenge) 91; students' work will vary.
 - (challenge) 301; students' work will vary.
 - (challenge) odd; students' explanations will vary.

Page 124, Solving Equations & Pattern Problems

- 5
 - 8
 - 12
 - 89
 - 9
 - 22
 - 24

- Students' responses will vary. Example: $53 - \underline{\quad} = 43$
- (challenge) 442; students' work will vary.
 - (challenge) odd; students' explanations will vary.

Page 125, Variables & Expressions

- 12
 - 24
 - 30
 - 48
- You would make \$90.
- $4 + 23 = 27$
 - $4 + 103 = 107$
 - $3 \times 2 - 2 = 4$
 - $3 \times 4 - 2 = 10$
 - $2 \times 7 + 12 = 26$
 - $2 \times 10 + 12 = 32$

Page 126, Cheetahs & Muffins

- Third choice, $5 \times c$
 - 30 pounds; students' work will vary.
 - 14 cheetahs; students' work will vary.
- Second choice, $m - 8$
 - 16 muffins; students' work will vary.
 - 20 muffins; students' work will vary.

Page 127, Adding Fractions with Different Denominators

- $\frac{51}{54}$ OR $\frac{17}{18}$
 - $\frac{148}{96}$ OR $\frac{152}{96}$ OR $\frac{113}{24}$
 - $\frac{53}{55}$
 - $\frac{170}{144}$ OR $\frac{126}{144}$ OR $\frac{113}{72}$

Page 128, Danny's Yard Work

- Third choice, $4 \times t + 10$
 - \$26.00; students' work will vary.
 - 6 hours; students' work will vary.
- (challenge) Students' responses will vary. Example:
 - $4 \times t + 10 \times t$
 - This expression would show how much money Danny would make if he had 2 different jobs. The variable t would be equal to what Danny charges per hour. He would work 2 jobs—1 for 4 hours, 1 for 10 hours.*



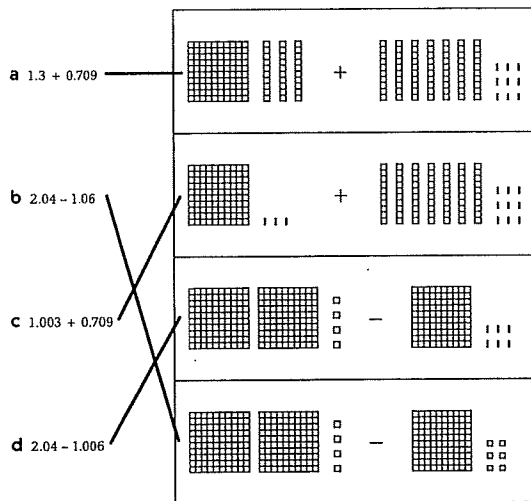
Use after Unit Seven, Session 8 (cont.)

Page 129, Subtracting Fractions with Different Denominators

- $\frac{18}{35}$; students' work will vary.
 - $\frac{1}{15}$; students' work will vary.
 - $\frac{7}{12}$ or $\frac{14}{24}$; students' work will vary.
 - $\frac{25}{104}$; students' work will vary.

Page 130, Modeling, Adding & Subtracting Decimals

1



- >
 - <
 - <
 - >

Use during Unit Eight

Page 131, Division Review

- Students' work will vary. 32 R 3
- Students' work will vary. 28 R 2

Page 132, Jorge & Maribel's Present

- No; cost of present unknown.
 - Third choice: The present costs \$73.
 - 5 hours (4 hours and 50 minutes is also acceptable.) Students' work will vary.

Page 133, Fraction Addition & Subtraction Review

- $\frac{13}{30}$
 - $\frac{25}{21}$ or $1\frac{4}{21}$
- Mabel ran exactly $\frac{3}{40}$ of a mile farther than Annie. Students' work will vary.
- $\frac{47}{40}$ or $1\frac{7}{40}$ miles

Page 134, More Fraction Problems

- $\frac{4}{10}$ (or $\frac{2}{5}$)
 - $\frac{8}{12}$ (or $\frac{2}{3}$)
 - $1\frac{1}{8}$
 - $1\frac{2}{12}$ (or $1\frac{1}{6}$)
 - $1\frac{2}{8}$ (or $1\frac{1}{4}$)
- $4\frac{1}{8}$ kilometers; students' work will vary.

Page 135, Fraction Addition & Subtraction Story Problems

- $1\frac{11}{70}$
 - $\frac{13}{63}$
- $3\frac{5}{12}$ cups of snack mix
- Julianne drank more $\frac{11}{48}$ more of a water bottle than Lisa.

Page 136, Reading & Interpreting a Double Bar Graph

- $2\frac{1}{4}$ feet
- $6\frac{3}{4}$ feet
- $16\frac{3}{4}$ feet
- Students' responses will vary. Example: *All three of the snakes were about the same length when they were born. By the time they grew up, the boa was a little more than twice as long as the ball python, and the anaconda was more than twice as long as the boa. The anaconda was between four and five times as long as the ball python.*

Page 137, Decimal Addition & Subtraction Review

- Students' responses will vary.
- 9.995; 17.593; 30.28; 10.208
8.319; 6.398
- 2.728; 2.228; 1.18; 5.071
3.786; 0.913


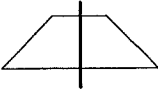
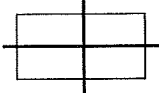


Page 138, The Python Problem

- Yes
 - None of the choices is helpful.
 - Eduardo's python was longer by 1.96 cm.



Use during Unit Eight (cont.)

Page 139, Drawing Lines of Symmetry

	<p>1</p>  <p>This figure has <u>0</u> line(s) of symmetry.</p>
<p>2</p>  <p>This figure has <u>1</u> line(s) of symmetry.</p>	<p>3</p>  <p>This figure has <u>2</u> line(s) of symmetry.</p>
<p>4</p>  <p>This figure has <u>0</u> line(s) of symmetry.</p>	<p>5</p>  <p>This figure has <u>1</u> line(s) of symmetry.</p>

Page 140, Classifying Triangles Review

- 3; Students' explanations will vary.
Example: *An acute triangle that is also equilateral has exactly 3 lines of symmetry.*
- 1; Students' explanations will vary.
Example: *A right triangle that is also isosceles has exactly 1 line of symmetry.*
- 1; Students' explanations will vary.
Example: *An obtuse triangle that is also isosceles has exactly 1 line of symmetry.*

NAME _____

DATE _____

Skills Review page 2 of 2**4** Fill in the blanks.

a $\frac{1}{2}$ of 84 = 42 **b** $\frac{1}{4}$ of 84 = 21 **c** $\frac{1}{8}$ of 84 = 10.5
d $\frac{1}{2}$ of 124 = 62 **e** $\frac{1}{4}$ of 124 = 31

5 True or False?

a $\frac{1}{4}$ of 28 = $\frac{1}{8}$ of 14 **F** **b** $\frac{1}{8}$ of 32 = $\frac{1}{4}$ of 16 **T** **c** $\frac{1}{2}$ of 56 = $\frac{1}{4}$ of 28 **F**

6 Add or subtract. Use the space below to show your work if necessary.

$\frac{1}{2} + \frac{5}{8} = \underline{\frac{9}{8}} = 1 \frac{1}{8}$	$2\frac{1}{6} - \frac{7}{12} = \underline{1 \frac{7}{12}}$	$8\frac{3}{4} + 1\frac{5}{12} = \underline{10 \frac{1}{6}}$
$6.89 + 8.12 = \underline{15.01}$	$10.01 - 3.72 = \underline{6.29}$	$3.12 - 2.76 = \underline{0.36}$
$\frac{2}{3} + \underline{\frac{7}{9}} = 1\frac{4}{9}$	$4.08 - \underline{1.09} = 2.99$	$5\frac{1}{2} - \underline{2\frac{3}{4}} = 2\frac{3}{4}$

7 CHALLENGE Randall has \$5.00 to spend on snacks at the movies. Use the table to figure out three snacks Randall can buy for \$5.00. Show your thinking. Is that the only combination of three snacks Randall can buy? How do you know?

Popcorn - small	\$2.75
Popcorn - medium	\$2.99
Popcorn - large	\$3.49
Cookie	\$2.25
Lemonade	\$1.19
Candy Bar	\$1.29
Granola Bar	\$0.89

There are several combinations Randall can buy.
A few examples:

Cookie + lemonade + candy bar: \$4.73

Cookie + lemonade + granola bar: \$4.33

Sm. popcorn + lemonade + granola bar: \$4.83

Sm. popcorn + candy bar + granola bar: \$4.93

NAME _____

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**Dante's Decision** page 1 of 2

Dante wants to spend some of his allowance money, but he is having a hard time deciding what to buy. He loves baseball cards, packs of gum, and bouncy balls. Fill in the ratio tables and answer the questions to help Dante keep track of what he can buy.

- 1** Dante's favorite packs of baseball cards cost \$1.70 each. Fill in the table below to show the cost of different numbers of packs of baseball cards.

Packs of Baseball Cards	1	2	4	8	9	10	15	25
Cost	\$1.70	\$3.40	\$6.80	\$13.60	\$15.30	\$17	\$25.50	\$42.50

- 2** Dante's favorite gum costs \$0.60 a pack. Fill in the table below to show the cost of different numbers of packs of gum.

Packs of Gum	1	2	5	9	10	19	20	25
Cost	\$0.60	\$1.20	\$3.00	\$5.40	\$6.00	\$11.40	\$12.00	\$15.00

- 3** Bouncy balls come in packages that cost \$3.15 each. Fill in the table below to show the cost of different numbers of packs of bouncy balls.

Packs of Bouncy Balls	1	2	3	6	9	10	12	20
Cost	\$3.15	\$6.30	\$9.45	\$18.90	\$28.35	\$31.50	\$37.80	\$63.00

- 4** Dante decided to spend only \$20.00 of his allowance and save the rest for later.

- a** Can he buy 12 packs of baseball cards? Why or why not?

No. 12 packs costs \$20.40.

- b** Can he buy 30 packs of gum? Why or why not?

Yes. 30 packs of gum costs \$18.

- c** How much of the \$20.00 will he still have after he buys 5 packs of bouncy balls?

\$4.25 (\$20 – \$15.75)

(continued on next page)

NAME _____

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Maria's Multiplication page 2 of 2**Review**

- 5** Finish the number pattern for the rule: $2n + 1$

3, 5, 7, 9, 11, 13, 15, 17, 19, 21

- 6** Finish the number pattern for the rule: $4n + 1$

5, 9, 13, 17, 21, 25, 29, 33, 37, 41

- 7** What do you notice about the two number patterns you just completed? How are they similar? How are they different?

Observations will vary. Some possibilities:

They both have only odd numbers.

All of the numbers in the second pattern appear in the first pattern.

Every other number in the first pattern is a number from the second pattern.

In the first pattern you add 2 to get the next number; in the second pattern you add 4.

- 8** Multiply:

a $8.7 \times 10 = \underline{87}$

b $8.7 \times 100 = \underline{870}$

c $8.7 \times 1,000 = \underline{8,700}$

d $8.7 \times 0.1 = \underline{0.87}$

e $8.7 \times 0.01 = \underline{0.087}$

- f** Look at the zeroes and the decimal points in your answers. What do you notice?

Observations will vary. Example:

When you multiply by a whole number power of 10 (like 10 or 100) you move the decimal to the right by the number of zeroes in the power of 10. When you multiply by a power of 10 less than 1 (like 0.1 or 0.01) you move the decimal point to the left by the number of digits to the right of the decimal point.

NAME _____

DATE _____



Fraction Times Fraction Checkpoint page 1 of 2

- 1 Henry's little sister spilled ketchup on one of his homework problems.

$$\frac{3}{5} \times \text{[ketchup-covered bubble]} = \underline{\hspace{2cm}}$$

- a Fill in the bubble to show what Henry should be able to tell for sure about the answer, even though he can't see the other number.

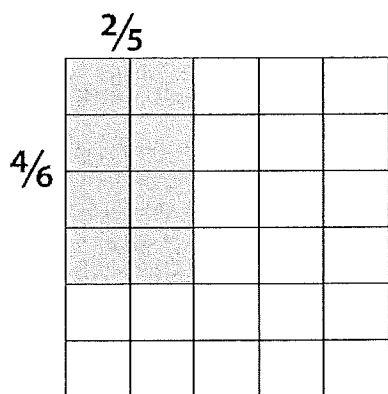
- The answer will be less than $\frac{3}{5}$.
 The answer will be greater than the ketchup-covered number.
 The answer will be less than the ketchup-covered number.

- b Explain your answer. How do you know the statement you chose is true?

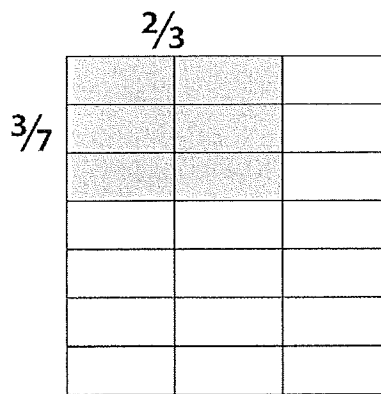
Explanations will vary. Example: *When you multiply a number by $\frac{3}{5}$, it's like finding only $\frac{3}{5}$ of the number, so the answer has to be less than the starting number.*

- 2 Use the rectangular arrays to model and solve each problem. Show all your work.

a $\frac{4}{6} \times \frac{2}{5} = \frac{8}{30}$ or $\frac{4}{15}$



b $\frac{3}{7} \times \frac{2}{3} = \frac{6}{21}$ or $\frac{2}{7}$



Work will vary.

(continued on next page)