Answer Key

GRADE 3 • MODULE 3

Multiplication and Division with Units of 0, 1, 6–9, and Multiples of 10

Lesson 1

Sprint

Side A

1.	2	12.	6	23.	14	34.	16
2.	4	13.	9	24.	25	35.	18
3.	6	14.	5	25.	30	36.	35
4.	4	15.	10	26.	35	37.	40
5.	8	16.	15	27.	20	38.	45
6.	12	17.	7	28.	24	39.	28
7.	6	18.	14	29.	28	40.	32
8.	12	19.	9	30.	15	41.	36
9.	8	20.	18	31.	18	42.	21
10.	16	21.	10	32.	21	43.	24
11.	3	22.	12	33.	14	44.	27

Side B

1.	5	12.	4	23.	35	34.	40
2.	10	13.	6	24.	10	35.	45
3.	15	14.	4	25.	12	36.	14
4.	3	15.	8	26.	14	37.	16
5.	6	16.	12	27.	15	38.	18
6.	9	17.	6	28.	18	39.	21
7.	7	18.	12	29.	21	40.	24
8.	14	19.	8	30.	20	41.	27
9.	9	20.	16	31.	24	42.	28
10.	18	21.	25	32.	28	43.	32
11.	2	22.	30	33.	35	44.	36

Problem Set

1. a. Answers will vary.
   b. (2, 14); (3, 21); (4, 28); (5, 35); (6, 42)
2. 24, 4, 6; 24, 6, 4
3. a. 7
   b. sixes; 18
   c. tens; 80
   d. 6; 24
   e. 5; 40
   f. 4; 4
   g. 1; 27
   h. 9; 36
   i. 3; 32
   j. 5;30
   k. 7; 3; 21
   l. 5; 5; 20

Exit Ticket

1. $28 = 4 \times 7$; $28 = 7 \times 4$
2. Explanations will vary.

Homework

1. a. (3, 9); (4, 12); (5, 15); (6, 18); (7, 21)
   b. (5, 20); (6, 24); (7, 28); (8, 32); (9, 36)
   c. (6, 30); (7, 35); (8, 40); (9, 45); (10, 50)
2. $24 = 4 \times 6$; $24 = 6 \times 4$
   $24 = 3 \times 8$; $24 = 8 \times 3$
3. Expressions accurately matched
4. a. 6
   b. 3; 18
   c. 8; 32
   d. 7; 7
   e. 7; 2; 14
   f. 5; 30

Lesson 2

Sprint

Side A

1.	4	12.	16	23.	30	34.	12
2.	6	13.	16	24.	30	35.	12
3.	6	14.	18	25.	35	36.	18
4.	8	15.	18	26.	35	37.	18
5.	8	16.	20	27.	40	38.	21
6.	10	17.	20	28.	40	39.	21
7.	10	18.	15	29.	45	40.	24
8.	12	19.	15	30.	45	41.	24
9.	12	20.	20	31.	50	42.	27
10.	14	21.	20	32.	50	43.	27
11.	14	22.	25	33.	9	44.	16

Side B

1.	10	12.	40	23.	12	34.	12
2.	10	13.	40	24.	12	35.	12
3.	15	14.	45	25.	14	36.	18
4.	15	15.	45	26.	14	37.	18
5.	20	16.	50	27.	16	38.	21
6.	20	17.	50	28.	16	39.	21
7.	25	18.	4	29.	18	40.	24
8.	30	19.	6	30.	18	41.	24
9.	30	20.	6	31.	20	42.	27
10.	35	21.	8	32.	20	43.	27
11.	35	22.	8	33.	9	44.	9

Problem Set

1. Sevens, 7, 7, 35

   5, 1, 7, 42; 6, 7, 42; 7, 6, 42

2. a. Eights, 8, 8, 40

   b. 48; Answers will vary.

3. 63

4. 4

5. No; explanations will vary.

Exit Ticket

1. 42; answers will vary.

Homework

1. 5 nines, 9, 9, 45

   5, 1, 9, 54; 6, 9, 54; 9, 6, 54

2. 42; solutions will vary.

3. 6

4. 3

Lesson 3

Problem Set

1. e = 20; ℓ = 7; i = 6; c = 3; s = 4; n= 10; t = 70; k = 9; b = 2; a = 24; h = 5; kitchen tables
2. a. m = $24
   b. c = $6
3. 4, n, 28; 28, 4, n; n = 7; 7 pans
4. Shorter game: 10 minutes; longer game: 22 min

Exit Ticket

1. 45
2. 5
3. 3
4. 28
5. 3, n, 15; 15, 3, n; n = 5; 5 rose bushes

Homework

1. a. 40, 50, 70, 80, 100
   b. e = 30; f = 40; p = 50; w = 60; n = 70; g = 80
2. n = 4; a = 4; p = 5; c = 3; d= 6; h = 35; f = 18; y = 8
3. a. b = $28
   b. c = $2; answers will vary.
4. 50 m; answers will vary.

Lesson 4

Problem Set

1. 12, 24, 42, 54; each number matched to its corresponding multiplication fact
2. 12, 18, 24; 4, 24; 24, 4
3. 12, 18, 24, 30, 36, 42; 7, 42; 42, 7
4. a. 12, 24, 18, 18, 36, 18, 30, 42
   b. 8; 8
5. No; explanations will vary.

Exit Ticket

1. 54; explanations will vary.
2. a. 48
   b. 9

Homework

1. a. 12
   b. 18
   c. 20, 4, 24
   d. 20, 10, 30
   e. 36
   f. 40, 2, 42
   g. Answers will vary; 48
   h. Answers will vary; 54
   i. Answers will vary; 60
2. 12, 18, 24, 30; 5, 30; 30, 5
3. 12, 18, 24, 30, 36; 6, 36; 36, 6
4. 8; answers will vary.

Lesson 5

Pattern Sheet

6	12	18	24
30	6	12	6
18	6	24	6
30	6	12	18
12	24	12	30
12	6	12	18
6	18	12	18
24	18	30	18
24	6	24	12
24	18	24	30
24	30	6	30
12	30	18	30
24	12	24	18
30	18	12	24
18	30	12	24

Problem Set

1. 14, 28, 35, 56, 63

   42, 6; 21, 3; 56, 8; 49, 7; 7, 1; 35, 5; 63, 9; 28, 4; 14, 2

2. 21, 35, 49, 56, 70

   a. 3, 21; 21, 3

   b. 5, 35; 35, 5

   c. 7, 49; 49, 7

   d. 8, 56; 56, 8

   e. 10, 70; 70, 10

3. Explanations will vary.

4. Both are correct; explanations will vary.

Exit Ticket

21, 35, 49, 56, 70

a. 1, 7; 7, 1

b. 2, 14; 14, 2

c. 3, 21; 21, 3

d. 4, 28; 28, 4

e. 5, 35; 35, 5

f. 6, 42; 42, 6

g. 7, 49; 49, 7

h. 8, 56; 56, 8

i. 9, 63; 63, 7

j. 10, 70; 70, 10

Homework

1. a. 14
   b. 20, 1, 21
   c. 20, 8, 28
   d. 30, 5, 35
   e. 40, 2, 42
   f. 40, 9, 49
   g. 50, 6, 56; answers may vary.
   h. 60, 3, 63; answers may vary.
2. 70, 63, 56, 42, 35, 21, 14
   70, 63, 56, 49, 42, 35, 28, 21, 14, 7
   70, 10; 63, 9; 56, 8; 49, 7; 42, 6; 35, 5; 28, 4; 21, 3; 14, 2; 7, 1

Lesson 6

Pattern Sheet

6	12	18	24
30	36	42	48
54	60	30	36
30	42	30	48
30	54	30	60
36	30	36	42
36	48	36	54
36	42	36	42
48	42	54	42
48	36	48	42
48	54	54	36
54	42	54	48
54	48	36	54
42	54	36	48
54	42	36	48

Problem Set

1. a. 36; 30; 1, 6; 6; 36
   b. 42; 30; 2, 12; 12; 42
   c. 48; 30; 3, 18; 3; 3; 18; 48
   d. 54; 30; 4, 24; 4; 4; 24; 54
2. 24, 6; 24; 4; 9
3. 14, 7; 14; 2; 7
4. Yes; explanations will vary.
5. Answers will vary.

Exit Ticket

1. 8 cars; answers will vary.
2. Both are correct; explanations will vary.

Homework

1. a. Tape diagrams accurately labeled; 42; 35; 1, 7; 7, 42
   b. Tape diagrams accurately labeled; 49; 35; 2, 14; 14, 49
   c. Tape diagrams accurately labeled; 56; 35; 3, 21; 3; 3; 21; 56
   d. Tape diagrams accurately labeled; 63; 35; 4, 28; 4; 4; 28; 63
2. 24; 24; 4; 9
3. 21; 35, 7; 21, 7; 3; 8
4. 7; explanations will vary.
5. Yes; explanations will vary.

Lesson 7

Pattern Sheet

7	14	21	28
35	7	14	7
21	7	28	7
35	7	14	21
14	28	14	35
14	7	14	21
7	21	14	21
28	21	35	21
28	7	28	14
28	21	28	35
28	35	7	35
14	35	21	35
28	14	28	21
35	21	14	28
21	35	14	28

Problem Set

1. Words matched to corresponding equations
2. k= 48; equations may vary.
3. a. Picture models equation; 7
   b. Picture models equation; 4 min
   c. Picture models equation; 48 cm
   d. Picture models equation; 9

Exit Ticket

1. 42; equations may vary.
2. $8; equations may vary.

Homework

1. Words matched to corresponding equations
2. a. m = $42; tape diagram drawn and labeled; equations may vary.
   b. p = 36; tape diagram drawn and labeled; equations may vary.
3. n = 4; tape diagram drawn and labeled; equations may vary.

Lesson 8

Pattern Sheet

7	14	21	28
35	42	49	56
63	70	35	42
35	49	35	56
35	63	35	70
42	35	42	49
42	56	42	63
42	49	42	49
56	49	63	49
56	42	56	49
56	63	63	42
63	49	63	56
63	56	42	63
49	63	42	56
63	49	42	56

Problem Set

1. a. 14
   b. 2
   c. 5
   d. 11
   e. 30
   f. 15
   g. 20
   h. 26
   i. 10
   j. 2
   k. 14
   l. 8
   m. 10
   n. 2
   o. 37
   p. 9

2. a. $(16 - 4) + 7 = 19$
   b. $16 - (4 + 7) = 5$
   c. $2 = 22 - (15 + 5)$
   d. $12 = (22 - 15) + 5$
   e. $(3 + 7) \times 6 = 60$
   f. $3 + (7 \times 6) = 45$
   g. $5 = (10 \div 10) \times 5$
   h. $50 = (100 \div 10) \times 5$
   i. $(26 - 5) \div 7 = 3$
   j. $36 = 4 \times (25 - 16)$

3. Chad used $(24 \div 4) + 2 = 8$; Samir used $24 \div (4 + 2) = 4$.
4. $12 + (15 \div 3) = 17$
5. 13; 20

Exit Ticket

1. a. $24 = (32 - 14) + 6$
   b. $12 = 32 - (14 + 6)$
   c. $(2 + 8) \times 7 = 70$
   d. $2 + (8 \times 7) = 58$
2. Marcos used $(24 \div 6) + 2 = 6$; Iris used $24 \div (6 + 2) = 3$.

Homework

1. a. 0
   b. 6
   c. 8
   d. 12
   e. 42
   f. 22
   g. 12
   h. 2
2. a. $14 – (8 + 2) = 4$
   b. $(14 – 8) + 2 = 8$
   c. $2 + (4 \times 7) = 30$
   d. $(2 + 4) \times 7 = 42$
   e. $12 = (18 \div 3) \times 2$
   f. $3 = 18 \div (3 \times 2)$
   g. $50 \div (5 \times 2) = 5$
   h. $20 = (50 \div 5) \times 2$
3. a. Answer provided
   b. True
   c. False
   d. True
   e. False
4. Explanations may vary.
5. $(4 \times 7) – 3 = 25$
6. Answers will vary.

Lesson 9

Application Problems

1. a. 17
   b. 17
   Circled
2. a. 24
   b. 24
   Circled
3. a. 10
   b. 10
   Circled
4. a. 16
   b. 16
   Circled
5. a. 25
   b. 13
6. a. 8
   b. 2
7. a. 7
   b. 1
8. a. 36
   b. 8

Problem Set

1. a. 36
   b. 9; 36
   c. 42
   d. 3, 2; 6, 7; 42
2. a. Answer provided.
   b. 4; 28
   c. 9, 4; 36
   d. 6, 7; 42
   e. 5, 9; 45
   f. 5, 6; 30
3. Explanations will vary.

Exit Ticket

1. 54; explanations will vary.

Homework

1. a. 48
   b. 2; 6, 8; 48
   c. 72
   d. 2; 8, 9; 72

2. a. 6, 42
   b. 9, 36

3. a. Answer provided.
   b. 60; 6 × (5 ×2)
   c. 70; 7 × (5 ×2)
   d. 80; 8 × (5 ×2)

Lesson 10

Problem Set

1. a. Arrays accurately labeled; 64; 40; 3, 24; 3; 3; 24; 64
   b. Arrays accurately labeled; 72; 40; 4, 32; 4; 4; 32; 72
2. 16; 2; 7
3. 32, 8; 32; 4; 9
4. 24, 32, 40, 48, 56, 64, 72; 72
5. Answer provided; 48; 24; 80; 64; 56
6. Answer provided; 4; 2; 8; 6; 9

Exit Ticket

56; strategy accurately used to solve

Homework

1. 56; 35; 3, 21; 3; 3; 21; 56
2. 32; 4; 9
3. 16, 24, 32, 40, 48, 56, 64, 72, 80; 72, 40, 64, 48, 56
4. 2; 5; 4; 6; 7; 9

Lesson 11

Pattern Sheet

8	16	24	32
40	8	16	8
24	8	32	8
40	8	16	24
16	32	16	40
16	8	16	24
8	24	16	24
32	24	40	24
32	8	32	16
32	24	32	40
32	40	8	40
16	40	24	40
32	16	32	24
40	24	16	32
24	40	16	32

Problem Set

1. Tape diagram drawn and labeled; n = 4
2. Tape diagram drawn and labeled; m = $48
3. Tape diagram drawn and labeled; c = 3
4. Tape diagram drawn and labeled; 5
5. Tape diagram drawn and labeled; 21
6. Tape diagram drawn and labeled; $36

Exit Ticket

1. a. Tape diagram drawn and labeled; p = 7
   b. 38

Homework

1. Tape diagram drawn and labeled; c = 70
2. Tape diagram drawn and labeled; v = 6
3. Tape diagram drawn and labeled; m = 7
4. Tape diagram drawn and labeled; 54
5. Tape diagram drawn and labeled; 10
6. Tape diagram drawn and labeled; $18

Lesson 12

Pattern Sheet

8	16	24	32
40	48	56	64
72	80	40	48
40	56	40	64
40	72	40	80
48	40	48	56
48	64	48	72
48	56	48	56
64	56	72	56
64	48	64	56
64	72	72	48
72	56	72	64
72	64	48	72
56	72	48	64
72	56	48	64

Problem Set

1. a. 54; 9; 9; 54
   b. 63; 2, 18; 2; 2; 18; 63
   c. 72; 45; 3, 27; 3; 3, 9; 27; 72
   d. 81; 45; 4, 36; 4; 4, 9; 36; 81
2. a. 54; 60; 54
   b. 63; 70; 63
   c. 72; 80; 72
   d. 81; 90, 9; 81
3. 36; answers will vary.
4. Products matched

Exit Ticket

1. 6, 1; 9, 1, 9; 9; 54
2. Picture models equation; explanations may vary.

Homework

1. a. 54; 24; 24; 54
   b. 63; 35; 4, 28; 4; 4; 28; 63
   c. 72; 40; 4, 32; 4; 4, 8; 32; 72
   d. 81; 45; 4, 36; 4; 4, 9; 36; 81
2. a. Answer provided
   b. 60; 54; 9×6
   c. 70; 63; 9×7
   d. 80; 72; 9×8
   e. 90, 9; 81; 9×9
   f. 40, 4; 36; 9×4

Lesson 13

Sprint

Side A

1.	16	12.	56	23.	10	34.	8
2.	24	13.	64	24.	4	35.	7
3.	32	14.	72	25.	3	36.	9
4.	40	15.	80	26.	10	37.	6
5.	8	16.	8	27.	5	38.	8
6.	2	17.	7	28.	8	39.	88
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	96
9.	8	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	112
11.	48	22.	2	33.	9	44.	14

Side B

1.	8	12.	48	23.	6	34.	7
2.	16	13.	56	24.	10	35.	8
3.	24	14.	64	25.	3	36.	9
4.	32	15.	72	26.	2	37.	6
5.	40	16.	7	27.	8	38.	7
6.	3	17.	6	28.	10	39.	88
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	96
9.	8	20.	9	31.	8	42.	12
10.	5	21.	2	32.	4	43.	104
11.	80	22.	5	33.	9	44.	13

Problem Set

1. a. 18, 27, 45, 54, 63, 81, 90
   b. +1
   c. –1
2. a. Answer provided
   b. 18
   c. 28; 27; 27
   d. 37; 36; 36
   e. 46; 45; 45
   f. 55; 54; 54
   g. 64; 63; 63
   h. 73; 72; 72
   i. 82; 81; 81
   j. 91; 90; 90
3. a. +10, –1
   b. 99; 108; 117; 126
   c. 54; 63; strategy accurately used to solve
   d. Answers will vary.
4. a = 6; g = 9; d = 8; 0 = 90; e = 7; n = 3; s = 4; t = 2; i = 45
   Add a 'g' and it's gone!

Exit Ticket

1. 64; 63; 63
   82; 81; 81
2. Answers will vary.

Homework

1. a. 81, 63, 54, 45, 27, 18, 9
   b. –1
   c. +1
2. a = 2; m = 27; e = 5; f = 36; d = 9; w = 54; s = 10; k = 72
3. a. 10; 9; 9
   b. 19; 18; 18
   c. 28; 27; 27
   d. 37; 36; 36
   e. 46; 45; 45
   f. 55; 54; 54
   g. 64; 63; 63
   h. 73; 72; 72
   i. 82; 81; 81
   j. 91; 90; 90
4. Answers will vary.; 99; 108; 117

Lesson 14

Pattern Sheet

9	18	27	36
45	9	18	9
27	9	36	9
45	9	18	27
18	36	18	45
18	9	18	27
9	27	18	27
36	27	45	27
36	9	36	18
36	27	36	45
36	45	9	45
18	45	27	45
36	18	36	27
45	27	18	36
27	45	18	36

Problem Set

1. a. Answer provided

   9

   27, 2, 7, 9

   36, 3, 6, 9

   45, 4, 5, 9

   54, 5, 4, 9

   63, 6, 3, 9

   72, 7, 2, 9

   81, 8, 1, 9

   90, 9, 0, 9

   b. 9; answers will vary.

2. Answers will vary.
3. Explanations will vary.
4. 63; explanations will vary.

Exit Ticket

1. Answers will vary.

Homework

1. a. Answer provided

   Answer provided

   72, 7, 2, 9

   63, 6, 3, 9

   54, 5, 4, 9

   45, 4, 5, 9

   36, 3, 6, 9

   27, 2, 7, 9

   18, 1, 8, 9

   9, 0, 9,9

   b. 9; answers will vary.

2. Answers will vary.
3. 54; explanations will vary.
4. Correct; answers will vary.

Lesson 15

Pattern Sheet

9	18	27	36
45	54	63	72
81	90	45	54
45	63	45	72
45	81	45	90
54	45	54	63
54	72	54	81
54	63	54	63
72	63	81	63
72	54	72	63
72	81	81	54
81	63	81	72
81	72	54	81
63	81	54	72
81	63	54	72

Problem Set

1. 4; solution includes equation and an unknown
2. 3 L; solution includes equation and an unknown
3. 63 m; solution includes equation and an unknown
4. $7; solution includes equation and an unknown
5. 3; solution includes equation and an unknown
6. 37; solution includes equation and an unknown

Exit Ticket

1. 4 L; solution includes equation and an unknown
2. 19

Homework

1. Tape diagram drawn and labeled; 36 ÷ 9 = a; a = 4
2. 5; solution includes an unknown
3. $63; solution includes an unknown
4. 9 m
5. 54
6. 3

Lesson 16

Sprint

Side A

1.	18	12.	63	23.	10	34.	8
2.	27	13.	72	24.	2	35.	7
3.	36	14.	81	25.	3	36.	9
4.	45	15.	90	26.	10	37.	6
5.	9	16.	8	27.	5	38.	8
6.	2	17.	7	28.	1	39.	99
7.	3	18.	9	29.	2	40.	11
8.	5	19.	6	30.	3	41.	108
9.	1	20.	10	31.	6	42.	12
10.	4	21.	5	32.	7	43.	126
11.	54	22.	1	33.	9	44.	14

Side B

1.	9	12.	54	23.	2	34.	7
2.	18	13.	63	24.	10	35.	8
3.	27	14.	72	25.	3	36.	9
4.	36	15.	81	26.	2	37.	6
5.	45	16.	7	27.	1	38.	7
6.	3	17.	6	28.	10	39.	99
7.	2	18.	8	29.	5	40.	11
8.	4	19.	10	30.	3	41.	108
9.	1	20.	9	31.	3	42.	12
10.	5	21.	1	32.	4	43.	117
11.	90	22.	5	33.	9	44.	13

Problem Set

1. a. 6
   b. 0
   c. 1
   d. 1
   e. 0
   f. Any number
   g. 4
   h. 3
2. Equations matched to solutions
3. 1, 2, 3, 4, 5, 6, 7, 8, 9, n
   Answers will vary.
4. a. $n \div 1 = n$
   b. $6 \div 1 = 6$
   c. $6 \times 1 = 6$
5. a. Explanations may vary.
   b. Explanations may vary.
   c. Explanations may vary.

Exit Ticket

1. a. 5
   b. 1
   c. 0
   d. 0
   e. 9
   f. 8
2. No; explanations may vary.

Homework

1. a. 4
   b. 0
   c. 5
   d. 0
   e. 1
   f. 0
   g. 0
   h. 0
   i. 1
   j. 1
   k. 1
   l. 9
2. Equations matched to solutions
3. a. Answer provided
   b. True
   c. True
   d. True
   e. False
   f. True
   g. True
   h. False
4. a. $n \times 1 = n$
   b. Answers will vary.

Lesson 17

Problem Set

1. Products accurately recorded
   a. Even-product squares colored; Yes
   b. No
   c. Explanations may vary.
   d. 112
2. a. Products accurately labeled
   b. Arrays accurately drawn; 5, 7, 9, 11
   c. Answers may vary.
   d. Explanations may vary.

Exit Ticket

1. 96
2. Explanations will vary.

Homework

1. a. Products accurately recorded
   b. Even factors accurately identified
   c. Explanations may vary.
   d. Odd; even; even; examples will vary.
   e. Explanations may vary.
   f. Answers will vary.
2. a. Answer provided
   b. $16 = 4 \times 4$
   c. $36 = 6 \times 6$
   d. $64 = 8 \times 8$
   e. $100 = 10 \times 10$

Lesson 18

Sprint

Side A

1.	2	12.	0	23.	1	34.	0
2.	3	13.	0	24.	1	35.	1
3.	4	14.	0	25.	1	36.	0
4.	9	15.	0	26.	0	37.	0
5.	0	16.	1	27.	7	38.	0
6.	0	17.	1	28.	0	39.	1
7.	0	18.	1	29.	1	40.	79
8.	1	19.	1	30.	0	41.	0
9.	1	20.	1	31.	Any number	42.	96
10.	1	21.	5	32.	1	43.	1
11.	1	22.	0	33.	24	44.	0

Side B

1.	3	12.	0	23.	1	34.	0
2.	4	13.	0	24.	1	35.	1
3.	5	14.	0	25.	1	36.	0
4.	8	15.	0	26.	0	37.	0
5.	0	16.	1	27.	9	38.	0
6.	0	17.	1	28.	0	39.	1
7.	0	18.	1	29.	1	40.	78
8.	1	19.	1	30.	0	41.	0
9.	1	20.	1	31.	1	42.	97
10.	1	21.	6	32.	0	43.	1
11.	1	22.	0	33.	34	44.	0

Problem Set

1. 27 cm; solution includes model, equation, and explanation.
2. 57 min; solution includes model, equation, and explanation.
3. 8; solution includes model, equation, and explanation.
4. 6; solution includes model, equation, and explanation.
5. 9 g; solution includes model, equation, and explanation.

Exit Ticket

117 minutes; solution includes model, equation, and explanation.

Homework

1. 34 kg; solution includes model, equation, and explanation.
2. 57 min; solution includes model, equation, and explanation.
3. 33; solution includes model, equation, and explanation.
4. 7; solution includes model, equation, and explanation.
5. 8 cm; solution includes model, equation, and explanation.
6. $8; solution includes model, equation, and explanation.

Lesson 19

Problem Set

1. a. 12; 12
   b. 12; 120
2. a. 8; 8
   b. 8; 80
   c. 15; 15
   d. 15; 150
   e. 20; 20
   f. 20; 200
3. a. 14
   b. 14
   c. 24
   d. 24
   e. 300
   f. 320
   g. 280
   h. 400
4. 240; tape diagram models equation.

Exit Ticket

1. 30, 30; 30, 300
2. a. 80
   b. 240

Homework

1. a. 9; 9
   b. 9; 90
2. a. 10; 10
   b. 10; 100
   c. 25; 25
   d. 25; 250
3. Products matched to corresponding solutions
4. 240; tape diagram models equation.

Lesson 20

Problem Set

1. a. Answer provided
   b. 80
   c. 15; 150
   d. 5; 150
2. Answer provided
   9; 90;
   6; 60
   10; 100
3. Explanations will vary.

Exit Ticket

1. a. $(4 \times 2) \times 10$; 8; 80
   b. $(3 \times 3) \times 10$; 9; 90
2. Explanations will vary.

Homework

1. a. 100
   b. 100
   c. 20; 200
   d. 5; 200
2. a. 60
   b. 9; 90
   c. 12; 120
   d. 15; 150
3. Explanations will vary.

Lesson 21

Sprint

Side A

1.	6	12.	150	23.	320	34.	560
2.	60	13.	16	24.	320	35.	480
3.	60	14.	160	25.	54	36.	630
4.	4	15.	160	26.	540	37.	300
5.	40	16.	18	27.	10	38.	640
6.	40	17.	180	28.	100	39.	720
7.	8	18.	180	29.	270	40.	480
8.	80	19.	35	30.	280	41.	490
9.	80	20.	350	31.	200	42.	400
10.	15	21.	350	32.	360	43.	540
11.	150	22.	32	33.	420	44.	810

Side B

1.	8	12.	250	23.	360	34.	420
2.	80	13.	12	24.	360	35.	360
3.	80	14.	120	25.	48	36.	490
4.	9	15.	120	26.	480	37.	300
5.	90	16.	21	27.	10	38.	480
6.	90	17.	210	28.	100	39.	560
7.	6	18.	210	29.	240	40.	480
8.	60	19.	24	30.	320	41.	630
9.	60	20.	240	31.	200	42.	400
10.	25	21.	240	32.	640	43.	720
11.	250	22.	36	33.	540	44.	630

Problem Set

1. 345 s; tape diagram models equation
2. No; explanations will vary; solution includes model and equation with unknown
3. 400¢; solution includes model and equation with unknown
4. 9 g; solution includes model and equation with unknown
5. 41; solution includes model and equation with unknown
6. $126; solution includes model and equation with unknown

Exit Ticket

1. 200 g; solution includes model and equation with unknown

Homework

1. 375 minutes; solution includes model and equation with unknown
2. 210; solution includes model and equation with unknown
3. Yes; explanations will vary; solution includes model and equation with unknown
4. 23; solution includes model and equation with unknown
5. No; explanations will vary; solution includes model and equation with unknown
6. $450; solution includes model and equation with unknown