

Answers

Lesson 1.1

- $5(\$2.20) + x = \12.25 ; A gallon of windshield washer fluid costs \$1.25 at ReadyGas.
- $2x + 3 = 13$; Trudi is 5 years old.

Lesson 1.2

- 1, 72 2, 36 3, 24 4, 18 6, 12 8, 9
- 1, 90 2, 45 3, 30 5, 18 6, 15 9, 10

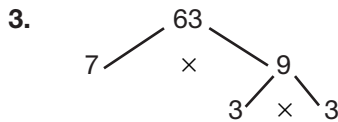
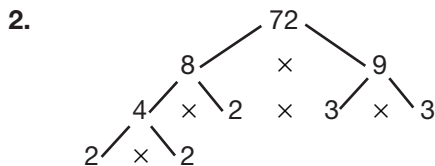
Lesson 1.3

- common multiples include 12, 24, 36, 48, and 60. The LCM is the lowest of these numbers, or 12.
- common multiples include 90, 180, 270, and 360. The LCM is the lowest of these numbers, or 90.

Lesson 1.4

- 41 3. 83, 97, 127

Lesson 1.5



Lesson 1.6

- $54 = 2 \times 3 \times 3 \times 3$, or 2×3^3
- $272 = 17 \times 2 \times 2 \times 2 \times 2$, or 17×2^4

Lesson 1.7

- 63 (1, 5, 7, 9, 13, 65); 117 (1, 3, 9, 13, 39, 117), GCF = 13
- 45 (1, 3, 5, 9, 15, 45); 54 (1, 2, 3, 6, 9, 18, 27, 54); 108 (1, 2, 3, 4, 6, 9, 12, 18, 27, 36, 54, 108), GCF = 9

Lesson 2.1

- $\frac{1}{3}$ of the page will be my work.

- $\frac{3}{8}$ of the page will show my ads.

Lesson 2.2

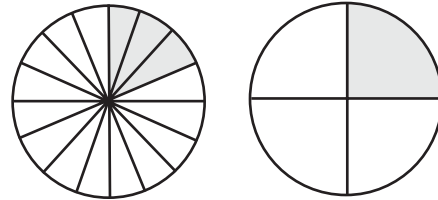
- Yes, Mia's solution is reasonable. 50 divided by 150 is less than 1 ($\frac{10}{150} = 0.33$). To divide 50 into 150 equal pieces, divide each stick into thirds.

Lesson 2.3

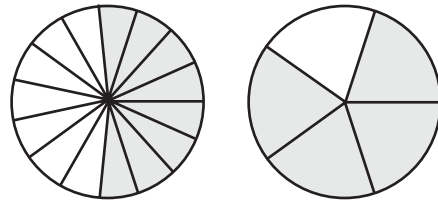
- $\frac{5}{23}, \frac{12}{23}, \frac{8}{11}$

Lesson 2.4

- It was the same amount because $\frac{1}{4}$ and $\frac{3}{12}$ are equivalent fractions.



- There were different amounts left. $\frac{8}{15}$ and $\frac{4}{5}$ are not equivalent fractions. $\frac{4}{5} = \frac{12}{15}$, which is not equal to $\frac{8}{15}$.



Lesson 2.5

- $\frac{1}{12}$ of Erika's garden was green peppers.
- $\frac{2}{5}$ of Erika's tomatoes died.
- A rabbit ate $\frac{1}{20}$ of Erika's plants.

Lesson 2.6

- $> (\frac{10}{15} > \frac{9}{15})$ 3. $< (\frac{3}{18} < \frac{4}{18})$
- Courtney remembers more often. $\frac{7}{8} > \frac{6}{8} (\frac{3}{4})$

Lesson 3.1

2. $\frac{3}{28} + \frac{9}{28} = \frac{12}{28} = \frac{3}{7}$

- 3.
- $\frac{2}{7} + \frac{1}{7} = \frac{3}{7}$
- , the fraction of goals scored by Paul and Roberto;
- $\frac{7}{7} - \frac{3}{7} = \frac{4}{7}$
- , the fraction of goals scored by other players.

Lesson 3.2

2. $\frac{3}{4} - \frac{1}{5} = \frac{15}{20} - \frac{4}{20} = \frac{11}{20}$

3. $\frac{3}{4} + \frac{2}{3} = \frac{9}{12} + \frac{8}{12} = \frac{17}{12} = 1\frac{5}{12}$

Lesson 3.3

2. $\frac{41}{24} = 1\frac{17}{24}$ 3. $\frac{44}{12} - \frac{15}{12} = \frac{29}{12} = 2\frac{5}{12}$

Lesson 3.4

2. $\frac{12}{45} = \frac{4}{15}$ 3. $\frac{3}{15} = \frac{1}{5}$

Lesson 3.5

2. $\frac{\frac{2}{5}}{\frac{2}{3}} = \frac{2}{5} \times \frac{3}{2} = \frac{6}{10} = \frac{3}{5}$ 3. $\frac{\frac{2}{7}}{\frac{7}{8}} = \frac{2}{7} \times \frac{8}{7} = \frac{16}{49}$

Lesson 3.6

2. $\frac{55}{24} = 2\frac{7}{24}$

Lesson 3.7

2. $\frac{20\frac{5}{6}}{2\frac{3}{8}} = 8\frac{44}{57}$ 3. $\frac{18\frac{1}{3}}{2\frac{3}{4}} = 6\frac{2}{3}$

Lesson 3.8

2. The baby girl weighs 6 pounds, 6 ounces, while her brother is 5 ounces lighter, at 6 pounds, 1 ounce.
-
3. Caitlin is 5 feet, 9 inches tall, 2 inches taller than Sarah, who is 5 feet, 7 inches.

Lesson 4.1

- 2.
- $1\ 100\text{s} + 7\ 10\text{s} + 7\ 1\text{s} + 6\ \frac{1}{10}\text{s} + 0\ \frac{1}{100}\text{s}$
-
3. 1 hundreds + 2 tens + 5 ones + 0 tenths + 3 hundredths

Lesson 4.2

2. sixty-four and thirty-seven thousandths;
- $(6 \times 10) + (4 \times 1) + (3 \times 0.01) + (7 \times 0.001)$
-
3. two thousand ninety and sixteen thousandths; 2090.016
-
4. 478.51;
- $(4 \times 100) + (7 \times 10) + (8 \times 1) + (5 \times 0.1) + (1 \times 0.01)$

Lesson 4.3

2. Snapper is taller than Foxy because
- $16.53 > 16.07$
- .
-
- 16.07
- rounds to 16 inches and
- 16.1
- inches.
-
- 16.53
- rounds to 17 inches and
- 16.5
- inches.

Lesson 4.4

2. $\$10.00 - \$7.60 = \$2.40$

Lesson 4.5

2. $\$0.21$ 3. $\$57.38$

Lesson 4.6

2. Individual nails cost
- $\$0.71$
- each. The box is a better deal.
-
3. 4 shelves

Lesson 4.7

- 2.
- $3500\ \text{liters} \div 1000 = 3.5\ \text{kiloliters}$
-
- 3.
- $32 \times 1000 = 3200\ \text{grams}$
-
- 4.
- $442 \div 10 = 44.2\ \text{centimeters}$

Lesson 5.1

2. 5 unlocked bikes : 35 locked bikes, or 1 unlocked bike : 7 locked bikes;
-
- $35\ \text{locked bikes} : 40\ \text{total bikes}$
- , or
- $7\ \text{locked bikes} : 8\ \text{total bikes}$
- ;
- $7 : 8$
- is greater.
-
3. 24 students with backpacks : 4 students without backpacks, or 6 students with backpacks : 1 student without a backpack; 4 students without backpacks : 28 students in the class, or 1 student without a backpack : 7 students in the class;
- $1 : 7$
- is less.

Lesson 5.2

2. 120 3. 196

Lesson 5.3

2. $1312\frac{1}{2}$ miles 3. 3600 surveys

Lesson 5.4

2. 2227.69 ft 3. 17.703 kilometers

Lesson 6.1

- 2.
- $\frac{46}{100}$
- or
- $\frac{23}{50}$
- , 0.46, 46%
-
- 3.
- $\frac{12}{25}$
- , 0.48, 48%

Lesson 6.2

- $0.83 \times 8 = 6.64$ pounds
- 1% of 98 = 0.98; $0.98 \times 70 = 68.6$ pounds of water
- 1% of 850 = 8.5; $8.5 \times 90 = 765$ pounds
- 1% of 156 is 1.56, $1.56 \times 65 = 101.4$ grams
- 1% of 7 is 0.07, $0.07 \times 65 = 4.55$ ounces

Lesson 6.3

- commission: \$2.13; total: \$69.63
- tax: \$2.40; total: \$32.39
- tip: \$1.78; total: \$43.03

Lesson 6.4

- $\frac{70}{100} = \frac{\$21}{x}$; $x = \$30$
- $100\% - 25\% = 75\%$, $\frac{75}{100} = \frac{\$18}{x}$; $x = \$24$
- $100\% - 40\% = 60\%$, $\frac{60}{100} = \frac{\$8.50}{x}$; $x = \$14.17$

Lesson 6.5

- $\frac{x}{100} = \frac{1800}{2500}$, $x = \frac{72}{100} = 72\%$
- $\frac{x}{100} = \frac{300}{1200}$, $x = \frac{25}{100} = 25\%$
- $\frac{x}{100} = \frac{10.5}{7}$, $x = \frac{150}{100} = 150\%$

Lesson 6.6

- 35%
- 33.3%

Lesson 7.1

- 26°
- \$11,500

Lesson 7.2

- On the same number line, students should draw an arrow from a plotted point at 7 to -2.
- On the same number line, students should draw an arrow from a plotted point at -3 to -8.

Lesson 7.3

- On the same number line, students should draw an arrow from a plotted point at 6 to 10.
- On the same number line, students should draw an arrow from a plotted point at -4 to -9.

Lesson 7.4

- $-6 \times 5 = -30$, $\frac{-30}{-10} = 3$
- $-3 \times (-8) = 24$, $\frac{24}{-6} = -4$

Lesson 7.5

- $|9 - (-5)| = 14$
-14 is the additive inverse of 14
- $|-8 - 1| = -9|$
9 is the additive inverse of -9

Lesson 7.6

- 0.7279 , $(7 \times 10^{-1}) + (2 \times 10^{-2}) + (7 \times 10^{-3}) + (9 \times 10^{-4})$
- 0.00542 , $(0 \times 10^{-1}) + (0 \times 10^{-2}) + (5 \times 10^{-3}) + (4 \times 10^{-4}) + (2 \times 10^{-4})$

Lesson 7.7

- 9.12×10^{-10}
- 605,000,000

Lesson 8.1

- Taft: 150 students Hayes: 170 students
Adams: 190 students middle school:
325 students high school: 700 students

Lesson 8.2

- 32 inches, 80 inches, 192 inches; 16 square inches, 40 square inches, 96 square inches

Lesson 8.3

- $\$27,000 + \$1,900 = \$28,900$
- $\$30,000 \times \frac{1}{5} = \$6,000$ off
- $3 + 7 = 10$ pieces of luggage

Lesson 8.4

- $52x + 14 = 170$, $x = 3$ programs
- $(\underline{\quad} \times n) + 2 = 152$, $n = 200$ people

Lesson 8.5

- (3, 4) B; (5, 0) F; (2, 8) J; (6, 5) A
- Students' answers should be accurately plotted at the specified points on the x- and y-axes.

Lesson 8.6

- $y - 2$ (8, 11), (9, 9) (10, 7), (11, 5), (12, 3), (13, 1) (14, 0)

Lesson 11.7

- Tables and graphs will vary.

Lesson 12.1

- triangular pyramid
- rectangular prism
- cylinder

Lesson 12.2

- Volume: 0.5 cu in
Surface Area: 4.5 sq in.

Lesson 12.3

Volume: 50.24 cu in.
Surface Area: $50.24 + 7.14 + 7.14 = 64.52$ sq in.

Lesson 12.4

- square pyramid: 40,500 cubic feet;
cone: 127,170 cubic feet; the cone has a greater volume

Lesson 12.5

- Volume: 523.3 cu in.
Surface Area: 314 sq in.

Lesson 12.6

- Answers will vary.

Lesson 12.7

- They are not similar.

Lesson 13.1

Step 1: If cu represents the number of cups of flour to be used and ca represents the number of cakes to be made, then $cu = 2ca$

Step 3: 1: 2, 2: 4, 3: 6, 4: 8, 5: 10. The number of cups of flour needed is a function of the number of cakes he wants to bake; he needs twice as many cups as cakes.

Lesson 13.2

Step 2: 2, 3, 4, 5; 10, 15, 20, 25

Step 3: (1, 5), (2, 10), (3, 15), (4, 20), (5, 25)

Step 6: You do get a straight line.

Lesson 13.3

Step 3: 18, 27, 36, 45, 54; 14, 21, 28, 35, 42

Step 5: slope = $\frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{7}{9}$.

Lesson 13.4

Step 1: (0, 8) (1, 15) (5, 50) (8, 60) (12, 80)

Step 2: The graph for the sample data is not linear.

Step 3: The y -intercept for the sample data is 8. It represents your birth weight of 8 pounds.

Step 4: There is no x -intercept.

Lesson 13.5

Step 2: Variables for the cookie example: days after there are 20 cookies, number of cookies left. Scale: 1 day, 2 cookies

Step 3: When x is equal to 0, y is equal to 20.

Step 4: Slope = $\frac{\text{change in } y}{\text{change in } x} = 2$ cookies per day

Lesson 13.6

Step 1: (1, 5), (2, 15), (3, 22), (4, 35), (5, 48), (6, 50), (7, 63), (8, 73), (9, 60), (10, 90)

Step 2: x : tree age, 1 to 10 by ones;
 y : tree height, 0 to 100 by tens.

Step 4: Answers may vary slightly.

Step 5: -6 (Answers may vary slightly.)

Step 6: On the line of best fit, at $x = 0$, $y = -6$.
At $x = 1$, $y = 5$. $\frac{5 - (-6)}{1 - 0} = 11$. The slope is 11.

Lesson 14.1

- -10.9275
- -0.805

Lesson 14.2

- $-1\frac{1}{5}$
- 390,625

Lesson 14.3

- $\frac{7}{9}$
- $\frac{5}{11}$

Lesson 14.4

- additive inverse, $x = 0$
- transitive property of equality, $x = 3$

Lesson 14.5

- 8
- $-36x$

Lesson 15.1

Step 1: Sample answer: (0, 32); $(-17, 0)$, $(-40, -40)$

Step 2: Sample answer: x -axis: degrees Celsius, by 5s. y -axis: degrees Fahrenheit, by 5s.

Step 5: 32

Step 6: $y = mx + b$; $y = \left(\frac{9}{5}\right)x + 32$. $M = \frac{9}{5}$.

From the graph: using the points (0, 32) and

(-40, -40): $m = \frac{-40 - 32}{-40 - 0} = -\frac{72}{-40} = \frac{9}{5}$.

Lesson 15.2

Step 1: Sample answer: Use the scale factor that would result in a diameter of one centimeter for the smallest body, Pluto. That would make the scale factor $\frac{1 \text{ cm}}{2340 \text{ cm}}$.

Step 2: Sample answer: We already know the smallest body is large enough, because we chose the scale factor to accommodate it. What happens to the largest body and the longest distance?

The largest body is the Sun. Its scale diameter will be $1,390,000 \text{ km} \times \frac{1 \text{ cm}}{2340 \text{ cm}} = 594 \text{ cm}$. That's close to 6 feet.

The longest distance is 5,900,000,000 km. On our scale that would be $5,900,000,000 \text{ km} \times \frac{1 \text{ cm}}{2340 \text{ cm}} = 2,500,000$ million cm. That's about 25,000 m – more than a mile!

Step 3: No, you can't make a scale model of the solar system, at least not one that includes a Pluto that is at least 1 centimeter in diameter.

Lesson 15.3

Step 1. After these 4 translations, the figure should end up at the starting point. What was done in the first step was undone in the third, and what was done in the second step was undone in the fourth.

Step 2. You should finish in the same place you started. Four 90° rotations amount to one full rotation; you are back where you started from.

A rotated object's orientation and location both change, but a translated object only goes through a change in location.

Lesson 15.4

Answers will vary.

Lesson 15.5

Step 1: Sample answer: a square with vertices at (1, 1), (1, 2), (2, 2), and (2, 1).

Transformation: dilation centered at the origin by a scale factor of 2, reflection in the x-axis, rotation 90 degrees clockwise.

Step 2:

- A. results for sample dilation: Vertices are at (2, 2), (2, 4), (4, 4), and (4, 2).
- B. results for sample reflection: Vertices are at (2, -2), (2, -4), (4, -4), and (4, -2).
- C. results for sample rotation: Vertices are at (-2, -4), (-2, -2), (-4, -2), and (-4, -4).

Step 3: Sample answer: dilation, rotation, reflection

- A. results for sample dilation: Vertices are at (2, 2), (2, 4), (4, 4), and (4, 2).
- B. results for sample rotation: Vertices are at (2, -2), (4, -2), (4, -4), and (2, -4).
- C. results for sample reflection: Vertices are at (2, 2), (2, 4), (4, 4), and (4, 2).

The results are different when the sequence changes. In the first case, the reflection moves the polygon from the first quadrant to the fourth and then the rotation moves it from the fourth to the third. In the second case, the rotation moves the polygon from the first quadrant to the fourth and the reflection moves it back to the first.