

6.6 Applying Fraction Operations, pages 234–235

4. a) $\frac{12}{5}$ b) 4 c) $4\frac{4}{3}$

5. a) $\frac{9}{2}$ b) $2\frac{1}{2}$ c) $7\frac{11}{7}$

6. a) \$584 b) \$656 c) \$728 d) \$620

7. $\frac{6}{1}$

8. a) $\frac{16}{3}$ b) $\frac{8}{1}$

9. $(1 - \frac{7}{5}) \times 28 = 8; \frac{7}{5} \times 28 = 20, 28 - 20 = 8$

10. a) 105 g b) 150 g c) 125 g

11. a) $4\frac{1}{4}$ pages b) \$1050 c) approximately \$247.06

12. \$40

13. a) $\frac{2}{5} \times (\frac{5}{3} - \frac{5}{2}) + \frac{1}{2} = 1$ b) $1\frac{1}{2} + 2\frac{1}{2} \div (\frac{4}{3} - \frac{8}{1})$

c) $(\frac{3}{2} - \frac{6}{1} + \frac{6}{5}) \div \frac{9}{16} = \frac{4}{3}$

14. Answers may vary. Example: a) $\frac{1}{1} \times \frac{2}{1} - \frac{2}{1} \times \frac{1}{1} \times \frac{2}{1}$

b) $\frac{2}{1} + \frac{2}{1} - \frac{2}{1} - \frac{2}{1}$ c) $(\frac{2}{1} + \frac{2}{1}) \times \frac{2}{1} \times \frac{2}{1}$ d) $(\frac{2}{1} + \frac{2}{1} + \frac{2}{1}) \div \frac{2}{1}$

e) $\frac{2}{1} \times \frac{2}{1} + \frac{2}{1} + \frac{2}{1} \times \frac{2}{1}$ f) $\frac{2}{1} \div \frac{2}{1} \div \frac{2}{1} \div \frac{2}{1}$ g) $\frac{2}{1} \times \frac{2}{1} \times \frac{2}{1} + \frac{2}{1}$

h) $(\frac{2}{1} + \frac{2}{1}) + (\frac{2}{1} + \frac{2}{1}) \div (\frac{2}{1} + \frac{2}{1}) \div (\frac{2}{1} + \frac{2}{1})$

15. $\frac{13}{13}$

16. There are 36 black notes and 52 white notes.

17. The racks hold 128, 64, and 32 CDs.

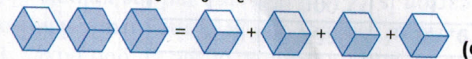
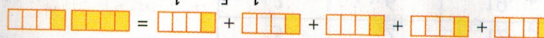
Chapter Review, pages 236–237

1. B 2. C 3. A

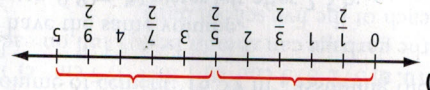
4. a) reciprocal b) Answer may vary. Example: The multiplier of a number to give a product of 1.

5. order of operations

6. Answer may vary. Example: a)



b) $4 \times \frac{1}{2} = \frac{3}{2}$ or $2\frac{1}{2}$

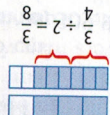


$2 \times \frac{2}{5} = \frac{2}{10}$ or $\frac{2}{5}$

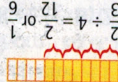
7. 9 kg

8. 4 cm

9. a) Answer may vary. Example:

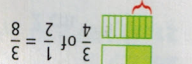
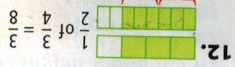


b) Answer may vary. Example:



10. $\frac{1}{12}$ of an onion

11. $\frac{40}{3}$ of the days of the year



13. a) Estimates will vary. Example: $\frac{1}{4}$; Answer: $\frac{3}{9}$

b) Estimates will vary. Example: $\frac{2}{7}$; Answer: $\frac{3}{1}$

c) Estimates will vary. Example: 0; Answer: $\frac{1}{14}$

14. $\frac{5}{1}$ of the class

15. a) Estimates will vary. Example: 3; Answer: $\frac{15}{8}$ or $3\frac{1}{8}$

b) Estimates will vary. Example: 4; Answer: $\frac{49}{4}$ or $4\frac{1}{4}$

c) Estimates will vary. Example: 8; Answer: $\frac{2}{19}$ or $\frac{2}{91}$

16. 1330 km

17. 84 h

18. approximately 44 cm

19. a) He multiplied the two numbers rather than dividing them. b) $\frac{2}{7}$

20. a) $\frac{5}{4}$ b) $1\frac{9}{8}$ c) 10

21. 30 days

22. $7\frac{1}{2}$ h

23. $1\frac{1}{2}$ times as long

24. a) $\frac{8}{7}$ b) $1\frac{5}{4}$

25. $3\frac{1}{2} \div \frac{1}{4} = 14; 16 \times \frac{1}{4} = 4$; He only has enough pasta to cook 14 dinners. He would need four full packages of pasta to cook 16 dinners.

26. $\frac{7}{1}$ full

27. 6 m

Chapter 7

7.1 Understanding Volume, pages 250–253

3. a) 60 cm^3 b) 216 cm^3 c) 1920 cm^3

4. a) 96 cm^3 b) 72 cm^3 c) 126 cm^3

5. a) 60 cm^3 ; 60 cm^3 b) 960 cm^3 ; 960 cm^3

6. a) 153 cm^3 ; 153 cm^3 b) 375 cm^3 ; 375 cm^3

7. a) 4 cm b) 7 cm c) 4 cm

8. 75 cm^3

Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)
16	15	5	1200
12	9	10	1080
7	2	5	70

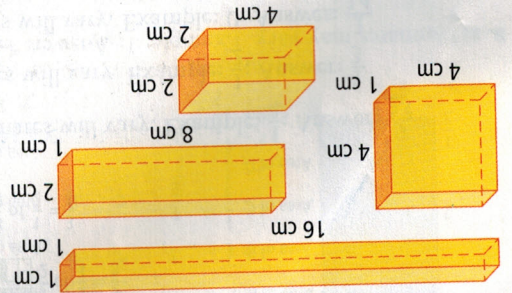
11. **a)** 15 m³ **b)** 792 m³ **c)** 49.6 m³
5. a) 40 m³ **b)** 504 cm³ **c)** 213.759 mm³ **d)** 253.952 cm³
6. a) 1000 cm³ **b)** 27 cm³ **c)** 15.625 cm³
7. a) 294 cm³ **b)** 133.65 m³ **c)** 13 440 000 mm³
8. a) 84 m³ **b)** 1200 cm³ **c)** 514.15 mm³
9. a) 200 cm³ **b)** 320.625 cm³ **c)** 5 460 000 mm³
10. a) 200 cm³ **b)** 84 cm³ **c)** 1800 cm³

7.2 Volume of a Prism, pages 258–261

18. **a)** volume of cube to area of base of box = 1 to 4 **b)** area of base of cube to area of base of box = 1 to 8 **c)** height of cube to height of box = 1 to 2 **d)** When the side length of a cube is doubled, the area of the base is four times as large and the volume of the cube is eight times as large.
17. level of water in the tank: 15.25 cm
 Structure 3: 360 cm³
 volume of Structure 2: 288 cm³, volume of Structure 3: 45 cubes **d)** volume of Structure 1: 216 cm³
c) Structure 1: 27 cubes; Structure 2: 36 cubes; Structure 2: 22 cubes; Structure 3: 30 cubes
 Structure 3: 15 cubes **b)** Structure 1: 17 cubes; Structure 1: 10 cubes; Structure 2: 14 cubes;

Length (cm)	Width (cm)	Height (cm)	Volume (cm ³)
16	1	1	16
4	4	1	16
2	8	1	16
2	2	4	16

15. 1.6%
 14. 24 530 m³
 13. **a)** 1 687 500 cm³ **b)** 1687.5 L
 12. 0.1875 m³
 11. 93.6 cm³
 10. 125 000 cm³



9. There are four ways to build a rectangular prism from 16 centimetre cubes.

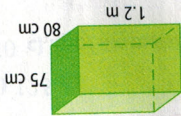
22. maximum volume of cement: 16.59 m³, assuming the tank is 1 m high
 23. Both prisms have the same volume.
 24. **a)** depth of water: 0.8 m **b)** water left after 2.5 h: 810 m³; new depth of water: 0.675 m **c)** length of time: 8.3 cm
8. 3 cm
 7. **a)** 602.88 cm³ **b)** 21.98 m³ **c)** 4239 cm³ **d)** 309.9768 m³
 6. **a)** 1570 cm³ **b)** 0.785 m³ **c)** 1907.55 cm³ **d)** 1589.625 cm³
 5. **a)** 628 cm³ **b)** 4179.34 cm³ **c)** 9.87844 m³
 4. **a)** 1805.5 cm³ **b)** 7385.28 cm³ **c)** 1.1775 m³

7.3 Volume of a Cylinder, pages 265–267

17. **a)** No. There is no whole number that can be cubed that will equal 18. **b)** Suki would need 27 cubes to make a 3 × 3 × 3 cube.
 19. volume of cube: 343 cm³; volume of rectangular prism: 360 cm³; volume of triangular prism: 367.5 cm³
 Harvey the guppy will have the most water in the triangular prism.
 20. 562.5 cm³
 21. 16 rectangular prisms with the dimensions shown in the table can be sketched.

Length (cm)	Width (cm)	Height (cm)
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16

17. 40 trips
 18. **a)** No. There is no whole number that can be cubed that will equal 18. **b)** Suki would need 27 cubes to make a 3 × 3 × 3 cube.
 19. volume of cube: 343 cm³; volume of rectangular prism: 360 cm³; volume of triangular prism: 367.5 cm³
 Harvey the guppy will have the most water in the triangular prism.
 20. 562.5 cm³
 21. 16 rectangular prisms with the dimensions shown in the table can be sketched.



17. 460 800 cm³
 15. 18 m³
 14. 4800 cm³
 will need 0.228 m³ more gravel.
 13. The landscaper does not have enough gravel. She needs 0.728 m³ of gravel and has 0.5 m³ of gravel. She

Base (cm)	Height of Triangle (cm)	Prism (cm)	Volume (cm ³)
20	14	5	700
18	12	10	1080
7	2	10	70

12.