

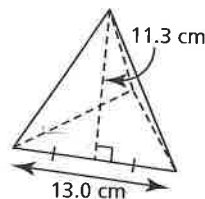
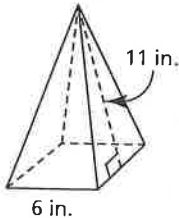
## Discuss the Ideas

1. How do you determine the surface area of a right pyramid?
2. When you see a picture of a right pyramid with a regular polygon base, how do you identify its height and its slant height?
3. How is calculating the surface area of a right pyramid like calculating the surface area of a right cone? How is it different?

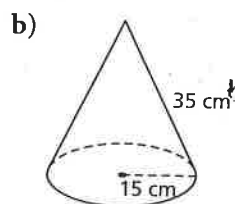
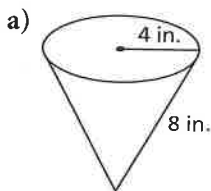
## Exercises

**A**

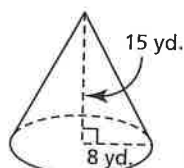
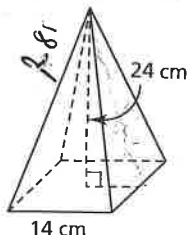
4. Determine the lateral area of each right pyramid to the nearest square unit.
- a) square pyramid      b) regular tetrahedron



5. Determine the surface area of each right pyramid in question 4, to the nearest square unit.
6. Determine the lateral area of each right cone to the nearest square unit.

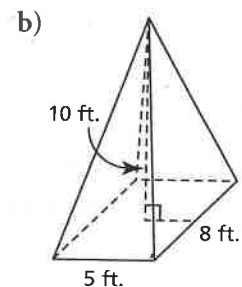
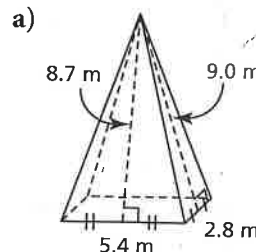


7. Determine the surface area of each right cone in question 6, to the nearest square unit.
8. Calculate the surface area of each object to the nearest square unit.
- a) right square pyramid      b) right cone



**B**

9. The slant height of a right square pyramid is 73 ft. and the side length of the base is 48 ft.
- a) Sketch the pyramid.
- b) Determine its lateral area to the nearest square foot.
10. The Great Pyramid at Giza has a square base with side length 755 ft. and an original height of 481 ft. Determine its original surface area to the nearest square foot.
11. Aiden built a cone-shaped volcano for a school science project. The volcano has a base diameter of 32 cm and a slant height of 45 cm.
- a) What is the lateral area of the volcano to the nearest tenth of a square centimetre?
- b) The paint for the volcano's surface costs \$1.99/jar, and one jar of paint covers 400 cm<sup>2</sup>. How much will the paint cost?
12. A road pylon approximates a right cone with perpendicular height 53 cm and base diameter 18 cm. The lateral surface of the pylon is to be painted with reflective paint. What is the area that will be painted? Answer to the nearest square centimetre.
13. Determine the surface area of each right rectangular pyramid to the nearest square unit.



## Chapter 1 Measurement, page 2

### 1.1 Imperial Measures of Length, page 11

3. Answers may vary. For example:
- a) Foot
  - b) Inch
  - c) Foot
  - d) Inch
  - e) Mile
4. a) Inch
5. Answers may vary. For example:
- a) Foot
7. a) 36 in.
- b) 189 ft.
- c) 4 ft.

8. a) 10 560 ft.
- b) 15 yd. 2 ft. 10 in.
- c) 1 mi. 703 yd. 1 ft.

9. 165 in. = 4 yd. 1 ft. 9 in.

10. a) 52 ft. = 17 yd. 1 ft.
- b) \$197.82

11. a) 24 mats

12. No; 21 ft. 9 in. = 7 yd. 9 in.

13. 10 in.

14. a) 39 ft. 2 in.
- b) 4 rolls
- c) \$49.96
- b) \$18.59

15. a) \$119.99
- b) \$18.59

16. 1062 ft.

17. 62 mi.

18. 28 tulip bulbs

19. 2 mi. 80 yd.

20. 1:2 349 000

21. a) \$351 000

22. \$158 400 000

### 1.2 Math Lab: Measuring Length and Distance, page 15

3. Calipers require a steady hand to ensure an accurate reading. Calipers cannot be used for large measures.

### 1.3 Relating SI and Imperial Units, page 22

Answers will vary depending on the conversion ratios used.

4. a) 40.6 cm
- b) 1.2 m
- c) 4.6 m
- d) 1.5 km
- e) 9.7 km
- f) 50.8 mm

5. a) 1 in.
- b) 8 ft.
- c) 11 yd.
- d) 93 mi.

6. a) 55.9 cm
- b) 256.5 cm
- c) 9.6 m

7. a) i) 2 ft. 6 in.
- ii) 3 yd.
- iii) 6 mi:

8. 100.6 m by 54.9 m

9. Tennessee River

10. The odometer is accurate; 142 km is close to 87 mi.

11. a) The warehouse

12. a) Michael

13. a) CN Tower: approximately 1815 ft.;

Willis Tower: approximately 442.3 m

- b) CN Tower
- c) 111 m; 364 ft.

14. 144 sections of casing

15. 28 in.

16. Yes; approximately 8 cm

17. 7 homes

18. a) Approximately 65 hectares

- b) Approximately 259 hectares

### Chapter 1: Checkpoint 1, page 25

3. a) 26 yd. 2 ft.
- b) 5280 yd.
- c) 84 in.

4. Sidney

7. Answers will vary depending on the conversion ratios used.

  - a) 14 yd. 1 ft.
  - b) 122 cm
  - c) 1 mi. 427 yd.
  - d) 273 yd. 1 ft. 3 in.
  - e) 330.2 m
  - f) 5 ft. 9 in.

8. 10 ft. of laminate

### 1.4 Surface Areas of Right Pyramids and Right Cones, page 34

4. a) 132 in.<sup>2</sup>- b) 220 cm<sup>2</sup>

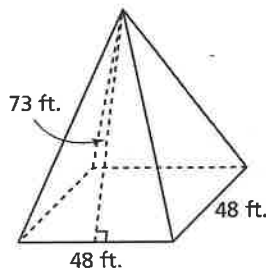
5. a) 168 in.<sup>2</sup>- b) 294 cm<sup>2</sup>

6. a) 101 in.<sup>2</sup>- b) 1649 cm<sup>2</sup>

7. a) 151 in.<sup>2</sup>- b) 2356 cm<sup>2</sup>

8. a) 896 cm<sup>2</sup>- b) 628 yd.<sup>2</sup>

9. a)

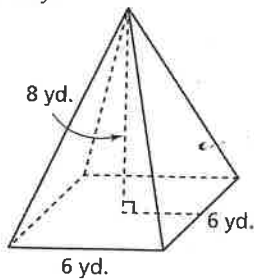


- b) 7008 ft.<sup>2</sup>

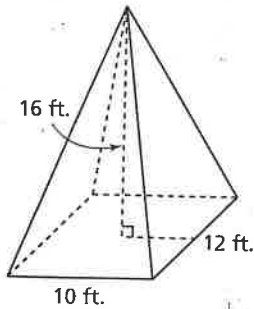
10.  $923\,285\text{ ft.}^2$   
 11. a)  $2261.9\text{ cm}^2$   
     b)  $\$11.94$   
 12.  $1520\text{ cm}^2$   
 13. a)  $87\text{ m}^2$   
     b)  $176\text{ ft.}^2$   
 14.  $2.0\text{ m}^2$ ; I assumed the hides had equal areas.  
 15.  $188\text{ ft.}^2$   
 16. a)  $69.0\text{ mm}$   
     b)  $7.6\text{ m}$   
 17. a) Right square pyramid and right cone  
     b) Right rectangular prism  
 18. The Louvre  
 19. a)  $193.7\text{ cm}^2$   
     b)  $34.9\text{ m}^2$   
 20.  $61\text{ ft.}^2$   
 21.  $16.0\text{ cm}$

**1.5 Volumes of Right Pyramids and Right Cones, page 42**

4. a)  $288\text{ yd.}^3$   
     b)  $1920\text{ ft.}^3$   
 5. a)  $96\text{ yd.}^3$

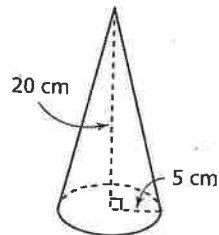


- b)  $640\text{ ft.}^3$

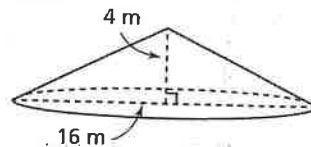


6. a)  $1571\text{ cm}^3$   
     b)  $804\text{ m}^3$

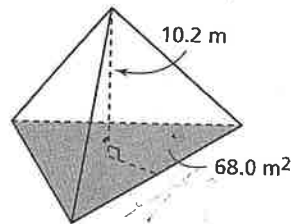
7. a)  $524\text{ cm}^3$



- b)  $268\text{ m}^3$

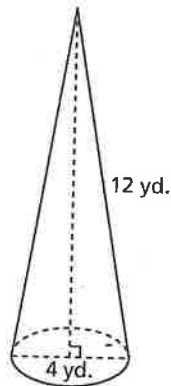


8. a)  $18\text{ m}^3$                       b)  $168\text{ yd.}^3$   
 9. a)  $37.7\text{ m}^3$                     b)  $2948.9\text{ cm}^3$   
 10. a)



- b)  $231.2\text{ m}^3$

11. a)



- b)  $50\text{ yd.}^3$   
 12.  $0.3\text{ m}^3$   
 13. b)  $441.2\text{ cm}^3$   
 14. a)  $5\text{ in.}^3$   
     b)  $\$3.33$   
     c) Approximately  $7\text{ in.}^3$