

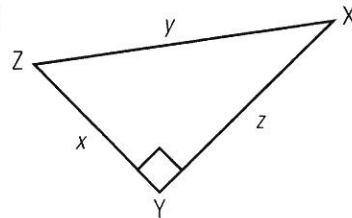
CHAPTER TEST, P. 284

- 5 in, 15 in, 25 in, 35 in, and 60 in
- $x = 7.2$ m
 $y \approx 3.5$ m
- The river is approximately 42.7 m wide.
- The man is approximately 2 m tall.
- When the side lengths of a rectangle are doubled, the area is quadrupled.
- When the ratios are rounded to 2 decimal places, the shapes are similar.
- True, all equilateral triangles are similar. In equilateral triangles, the angles are always 60° and the ratios of the sides will always be equal.
 - False, all isosceles triangles are not similar. The angles do not need to be equal, nor do the sides have to be proportional.
 - True, congruent triangles are similar. The corresponding angles are equal and the ratios of sides will be 1:1.
- The scale factor of the projection is about 8.3.
- $17'$ is represented by $7.8''$.
 $6'$ is represented by $2.8''$.
 $5'2''$ is represented by $2.4''$.
 $7'2''$ is represented by $3.4''$.
- The painting will be 31.25 inches by 43.75 inches.
- 95.7 cm by 126.5 cm

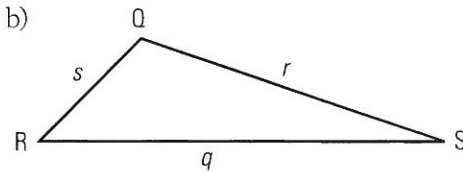
CHAPTER 7:
TRIGONOMETRY OF RIGHT TRIANGLES
7.1 THE PYTHAGOREAN THEOREM

BUILD YOUR SKILLS, P. 290

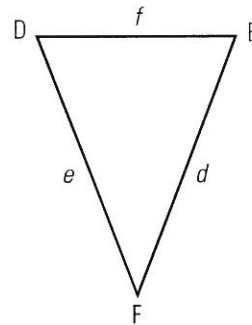
1. a)



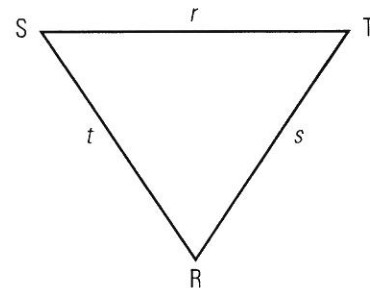
b)



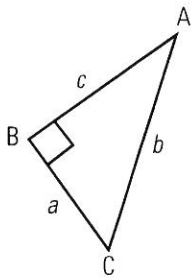
c)



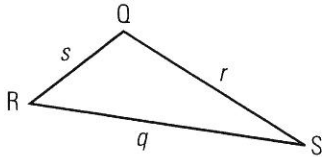
d)



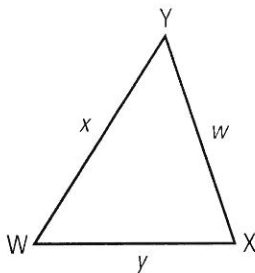
2. a)



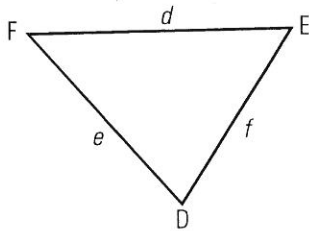
b)



c)



d)



3. In $\triangle ABC$:

$$a^2 + c^2 = (x + y)^2$$

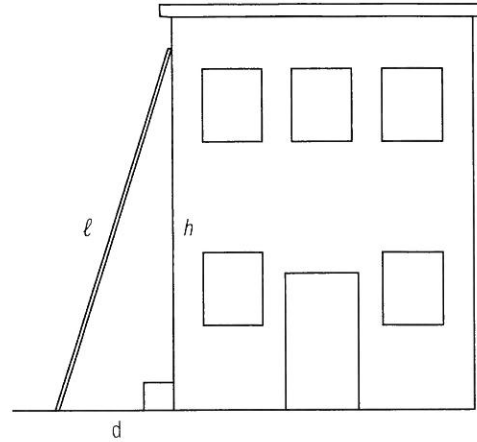
In $\triangle ABD$:

$$x^2 + z^2 = c^2$$

In $\triangle BDC$:

$$z^2 + y^2 = a^2$$

4.



$$h^2 + d^2 = l^2$$

5. $x = \sqrt{z^2 - y^2}$

$$y = \sqrt{z^2 - x^2}$$

6. $x \approx 8.0$ cm

$$y \approx 6.7$$
 cm

7. approximately 12.5 feet

8. Your route would be about 83.7 m shorter by walking diagonally across the field.

PRACTISE YOUR NEW SKILLS, P. 295

1. approximately 10 ft 7.2 in

2. approximately 14.4 m

3. approximately 11.1 m

4. approximately 41 in

5. approximately 50.9 km

7.2 THE SINE RATIO**BUILD YOUR SKILLS, P. 298**

- $\sin A \approx 0.62$
 - $\sin A \approx 0.54$
- $\sin 10^\circ = 0.1736$
 - $\sin 48^\circ = 0.7431$
 - $\sin 62^\circ = 0.8829$
 - $\sin 77^\circ = 0.9744$
- $\sin 90^\circ = 1$
Possible reasons will vary.
- $a \approx 8.2$ cm
 - $x \approx 3.8$ cm
- about 7 ft
- about 8.6 m
- $h \approx 14.3$ mm
 - $h \approx 12.9$ cm
- approximately 5.3 m long
- about 22 m
- about 404.5 m
- approximately 203.9 m
- about 1.9 m

PRACTISE YOUR NEW SKILLS, P. 306

- $\sin A \approx 0.6371$
 - $\sin B \approx 0.7191$
- $x \approx 17.9$ cm
 - $y \approx 12.5$ cm
- about 5.5 m
- about 8.6 m
- about 41.7 m

7.3 THE COSINE RATIO**BUILD YOUR SKILLS, P. 310**

- $\cos 23^\circ = 0.9205$
 $\sin 67^\circ = 0.9205$
 - $\cos 83^\circ = 0.1219$
 $\sin 7^\circ = 0.1219$
 - $\cos 45^\circ = 0.7071$
 $\sin 45^\circ = 0.7071$
 - $\cos 37^\circ = 0.7986$
 $\sin 53^\circ = 0.7986$
- $x \approx 8.2$ cm
 - $x \approx 1.7$ cm
 - $x \approx 8.6$ cm
 - $x \approx 12.2$ cm
- about 5.4 m
- about 9.8 yards
- about 6.2 m
- about 14.1 m
- about 11.6 m
- about 502 km

PRACTISE YOUR NEW SKILLS, P. 315

- $x \approx 3.6$ cm
 - $a \approx 4.8$ m
 - $r \approx 9.5$ cm
 - $\ell \approx 3.1$ m
- approximately 17.3 m
- approximately 23.7 m
- about 1.24 km
- about 8.49 km
- about 3.42 m

7.4 THE TANGENT RATIO

BUILD YOUR SKILLS, P. 320

- a) $x \approx 9.5$ m b) $a \approx 22.4$ in
 c) $r \approx 2.4$ m d) $p \approx 7.9$ in
- about 412 m
- about 2.1 m

PRACTISE YOUR NEW SKILLS, P. 321

- about 21 m
- about 9 m
- about 5.5 ft
- about 141.1 m
- about 12.9 ft
- about 373 m

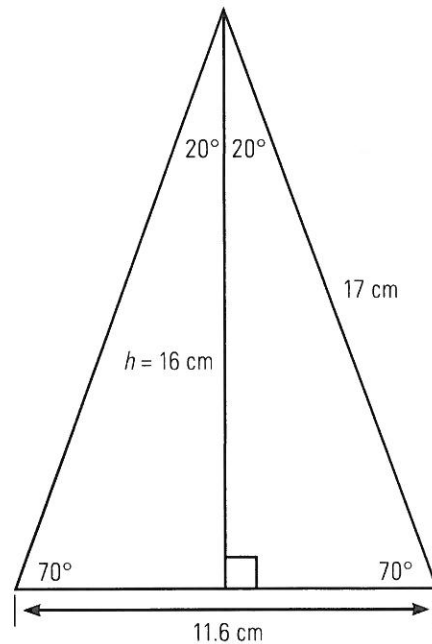
7.5 FINDING ANGLES AND SOLVING RIGHT TRIANGLES

BUILD YOUR SKILLS, P. 325

- a) $D \approx 33^\circ$
 b) $F \approx 26^\circ$
 c) $G \approx 67^\circ$
 d) $H \approx 89^\circ$
- $\angle X \approx 61^\circ$
- about 62°
- about 54°
- about 38°
- about 51°

- $r \approx 7.3$ m
 $q \approx 4.9$ m
 $\angle Q = 42^\circ$

8.

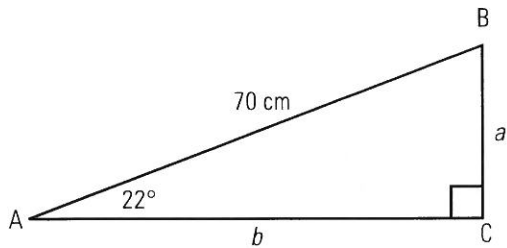


- width: about 10.6 yards; total height of building: about 4.9 yards.
- a) $\angle R \approx 28^\circ$
 $\angle S \approx 62^\circ$
 $t \approx 3.2$ m
 b) $l \approx 6.6$ cm
 $\angle M \approx 45^\circ$
 $\angle L \approx 45^\circ$
- pole height: about 8 m; the cable is attached about 16 m away from the pole.
- a) $a \approx 23$ cm b) $b \approx 18$ cm
 c) $c \approx 16$ cm d) $d \approx 12$ cm

PRACTISE YOUR NEW SKILLS, P. 333

1. a) $\angle A \approx 31^\circ$ b) $\angle B \approx 48^\circ$

2.



$\angle B = 68^\circ$

$a = 26 \text{ cm}$

$b = 65 \text{ cm}$

3. about 18.4°
4. about 24.1 ft
5. The driveway is about 4.7 m long. The garage entrance is about 3.6 m into the lot.
6. about 31°

CHAPTER TEST, P. 336

1. 130 cm
2. about 181 m
3. about 1.67 km
4. The ramp rose about 3.1 m.

Because of similarity of triangles, a 24-m ramp would rise double that of a 12-m ramp, or about 6.2 m.

5. about 29.2 m
6. about 17.3 m
7. about 423.6 m
8. a) about 7.2 m
b) about 2.4 m
9. about 8.2 m
10. about 6 m
11. about 25°