

Lesson 12.1 • Trigonometric Ratios

Name _____ Period _____ Date _____

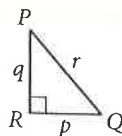
In Exercises 1–4, give each answer as a fraction in terms of p , q , and r .

1. $\sin P = \frac{p}{r}$

2. $\cos P = \frac{q}{r}$

3. $\tan P = \frac{p}{q}$

4. $\sin Q = \frac{q}{r}$



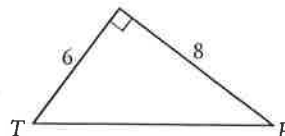
In Exercises 5–8, give each answer as a decimal accurate to the nearest 0.001.

5. $\sin T = .800$

6. $\cos T = .600$

7. $\tan T = 1.333$

8. $\sin R = .600$



For Exercises 9–11, solve for x . Express each answer accurate to the nearest 0.01.

9. $\cos 64^\circ = \frac{x}{28}$

$x \approx 12.27$

10. $\sin 24^\circ = \frac{12.1}{x}$

$x \approx 29.75$

11. $\tan 51^\circ = \frac{x}{14.8}$

$x \approx 18.28$

For Exercises 12–14, find the measure of each angle to the nearest degree.

12. $\sin A = 0.9455$

71°

13. $\tan B = \frac{4}{3}$

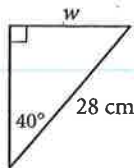
53°

14. $\cos C = 0.8660$

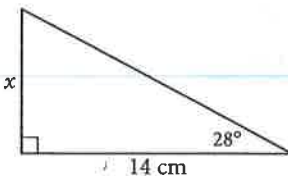
30°

For Exercises 15–17, write a trigonometric equation you can use to solve for the unknown value. Then find the value to the nearest 0.1.

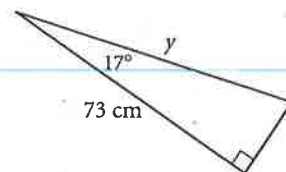
15. $w \approx 18.0$



16. $x \approx 7.4$

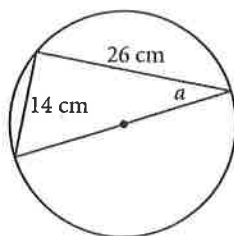


17. $y \approx 76.3$

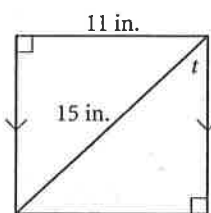


For Exercises 18–20, find the value of each unknown to the nearest degree.

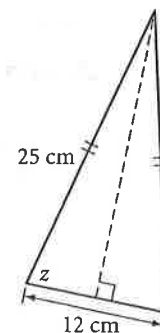
18. $a \approx 28^\circ$



19. $t \approx 47^\circ$



20. $z \approx 76^\circ$

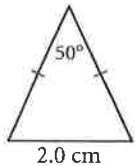


Lesson 12.2 • Problem Solving with Right Triangles

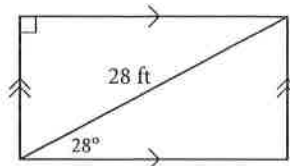
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For Exercises 1–3, find the area of each figure to the nearest square unit.

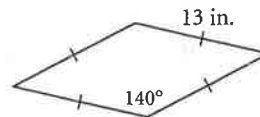
1. Area \approx 2cm^2



2. Area \approx 325ft^2



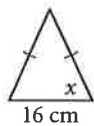
3. Area \approx 109in^2



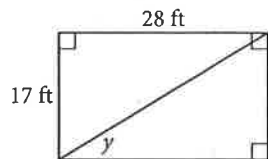
For Exercises 4–9, find each unknown to the nearest tenth of a unit.

4. Area = 88cm^2

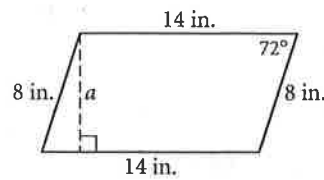
$x \approx$ 54°



5. $y \approx$ 31.3°

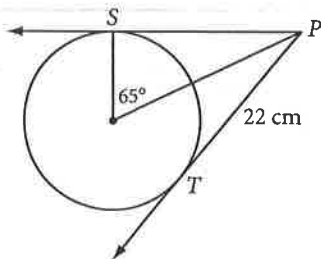


6. $a \approx$ 7.6in.



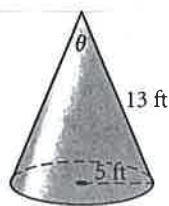
7. \overrightarrow{PS} and \overrightarrow{PT} are tangents.

Diameter \approx 20.5cm



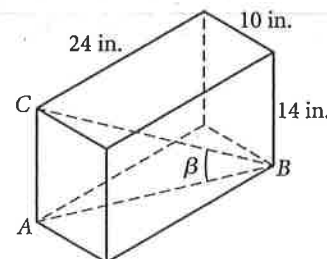
8. Right cone

$\theta \approx$ 45.2°



9. Right rectangular prism

$m\angle ABC = \beta \approx$ 28.3°



In Exercises 10–12, give each answer to the nearest tenth of a unit.

10. A ladder 7 m long stands on level ground and makes a 73° angle with the ground as it rests against a wall. How far from the wall is the base of the ladder? 2.1m

11. To see the top of a building 1000 feet away, you look up 24° from the horizontal. What is the height of the building? 445.2ft

12. A guy wire is anchored 12 feet from the base of a pole. The wire makes a 58° angle with the ground. How long is the wire? 22.6ft