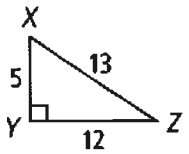
Name Answers Date

8.7 – Tangent, Sine, and Cosine (Part 2)

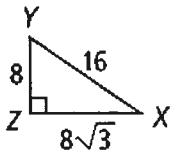
Write the ratios for sin X, cos X, and tan X. Leave your answer in simplified radical form.

1) 

$\sin X = \frac{12}{13}$

$\cos X = \frac{5}{13}$

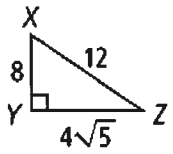
$\tan X = \frac{12}{5}$

2) 

$\sin X = \frac{1}{2}$

$\cos X = \frac{\sqrt{3}}{2}$

$\tan X = \frac{\sqrt{3}}{3}$

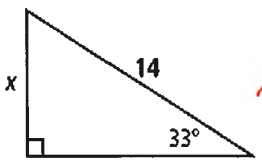
3) 

$\sin X = \frac{\sqrt{5}}{3}$

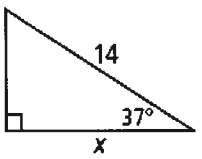
$\cos X = \frac{2}{3}$

$\tan X = \frac{\sqrt{5}}{2}$

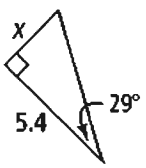
Find the value of x. Round to the nearest tenth.

4) 

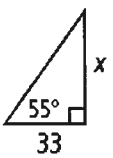
$x \approx 7.6$

5) 

$x \approx 11.2$

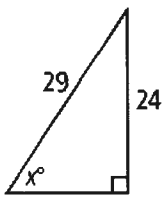
6) 

$x \approx 3.0$

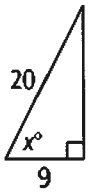
7) 

$x \approx 47.1$

Find the value of $\underline{x}$. Round to the nearest degree.

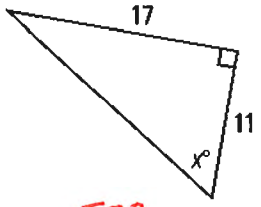
8) 

$56°$

9) 

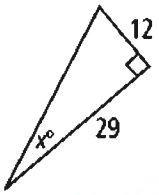
$63°$

10)



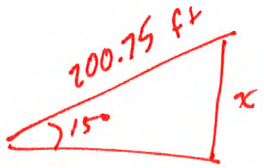
57°

11)



22°

12) An escalator at a shopping center is 200 ft 9 in. long, and rises at an angle of 15°. What is the vertical rise of the escalator? Round to the nearest inch.



$\sin 15° = \frac{x}{200.75}$ $x \approx 51$ ft 11 in.

$\sin 15° = \frac{x}{2409}$ or $x \approx 623$ in.

13) A 12-ft-long ladder is leaning against a wall and makes a 77° angle with the ground. How high does the ladder reach on the wall? Round to the nearest inch.

11ft 8in

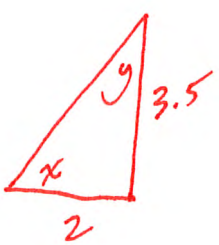
or

140 in.

14) A straight ramp rises at an angle of 25.5° and has a base 30 ft long. How high is the ramp? Round to the nearest foot.

14 ft.

15) The lengths of the diagonals of a rhombus are 4 in. and 7 in. Find the measures of the angles of the rhombus to the nearest degree.

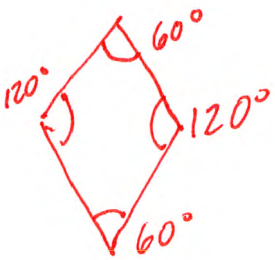


$\tan x = \frac{3.5}{2}$

$x \approx 60°$

$\tan y \approx \frac{2}{3.5}$

$y \approx 30°$

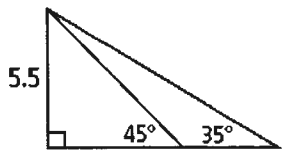


16) The lengths of the diagonals of a rhombus are 5 in. and 8 in. Find the measures of the angles of the rhombus to the nearest degree.

64° and 116°

Find the values of w and then x. Round lengths to the nearest tenth and angle measures to the nearest degree.

17)



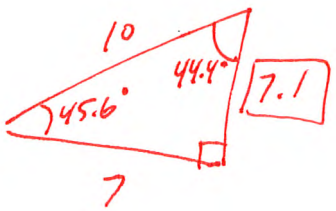
5.5 2.4

18)

26°

19) Explain why tan 45° = 1

20) A right triangle has a hypotenuse of length 10 and one leg of length 7. Find the length of the other leg and the measures of the acute angles in the triangle. Round your answers to the nearest tenth



21) A right triangle has an angle that measures 28. The leg opposite the 28° angle measures 13. Find the length of the other leg and the hypotenuse. Round your answers to the nearest tenth.