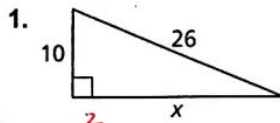


Chapter 9 Test B

Find the value of x . Then tell whether the side lengths form a Pythagorean triple.

Answers

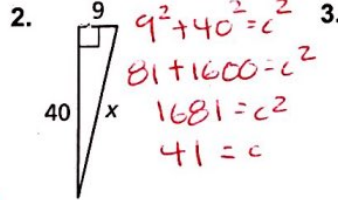


$$10^2 + x^2 = 26^2$$

$$100 + x^2 = 676$$

$$x^2 = 576$$

$$x = 24$$

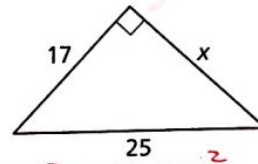


$$9^2 + 40^2 = c^2$$

$$81 + 1600 = c^2$$

$$1681 = c^2$$

$$41 = c$$



$$17^2 + 25^2 = x^2$$

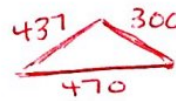
$$289 + 625 = x^2$$

$$x^2 = 914$$

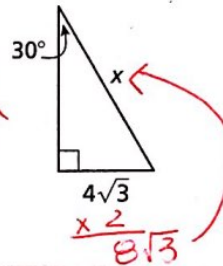
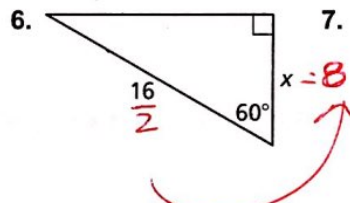
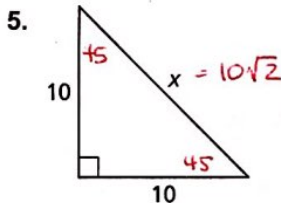
4. You fly 470 miles due west from Chicago, Illinois, to Omaha, Nebraska. You then fly 437 miles to St. Louis, Missouri. Finally, you fly 300 miles back to Chicago. Is the triangle formed by your trip acute, right, or obtuse? Explain your reasoning.

$$437^2 + 300^2 \stackrel{?}{>} 470^2$$

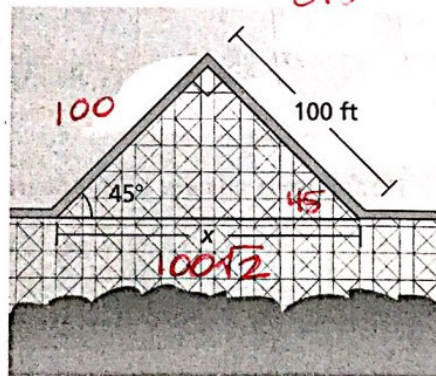
$$190969 + 90000 \stackrel{?}{>} 220900$$



Find the value of x . Write your answer in simplest form.

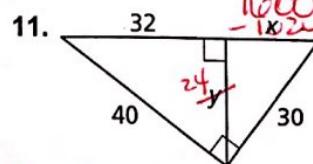
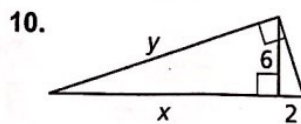
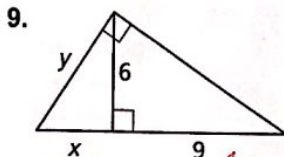


8. Your friend went on a trip to Kennywood Park. While there, he examined the inclined section of the roller-coaster track for the Phantom's Revenge. He noticed the ramp section rose at a 45° angle with the horizontal section, and connected at the top of the hill with a segment 100 feet long. These pieces formed a right angle at the top of the hill. Find x , the length from the point of inclination to the bottom of the hill.



1. 24
YES
2. 41
YES
3. 18.3
NO
4. 280969 >
220900
ACUTE
5. 10\sqrt{2}
6. 8
7. 8\sqrt{3}
8. 100\sqrt{2}
9. x = 4
y = 7.2
10. x = 18
y = 19.05
11. x = 18
y = 24

Find the values of x and y . Write your answer in simplest form.



$$40^2 = 32^2 + y^2$$

$$1600 = 1024 + y^2$$

$$576 = y^2$$

$$24 = y$$

$$30^2 = 24^2 + x^2$$

$$900 = 576 + x^2$$

$$324 = x^2$$

$$18 = x$$

9.

$$\frac{6}{x} = \frac{9}{9}$$

$$6 = x$$

10.

$$\frac{6}{x} = \frac{13}{13}$$

$$6 = x$$

11.

$$\frac{32}{2} = \frac{40}{x}$$

$$16 = \frac{40}{x}$$

$$16x = 40$$

$$x = 2.5$$

11.

$$\frac{30}{2} = \frac{40}{y}$$

$$15 = \frac{40}{y}$$

$$15y = 40$$

$$y = \frac{8}{3}$$

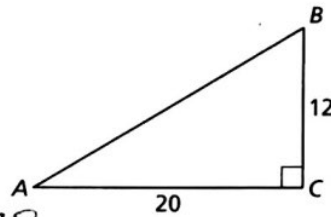
Chapter 9 Test B (continued)

Find $\tan A$ and $\tan B$. Write each answer as a fraction and as a decimal rounded to the nearest tenth.

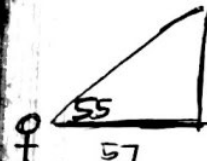
12. $\tan A = \frac{12}{20}$ 13. $\tan B = \frac{20}{12}$

Find the measure of each angle to the nearest degree.

14. $m\angle A = 12$ 15. $m\angle B = 20$
 $\tan^{-1} = \frac{12}{20}$ $\tan^{-1} = \frac{20}{12}$

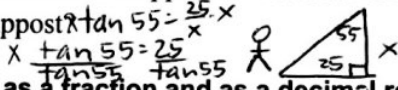


16. You look up at a 55° angle to see the top of a building. The vertical distance from the ground to your eye is 5.5 feet and the distance from you to the building is 57 feet. Estimate the height of the building.



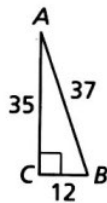
$\tan 55 = \frac{x}{57}$
 $57 \tan 55 = x$
 $81.4 = x$
 then add
 5.5 to
 81.4

17. A bird sits on top of a lamppost. The angle made by the lamppost and a line from the feet of the bird to the feet of an observer standing away from the lamppost is 55° . The distance from the lamppost to the observer is 25 feet. Estimate the height of the lamppost.

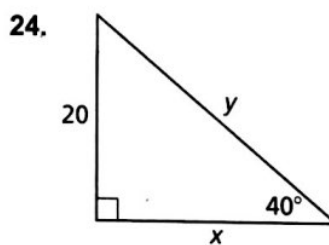
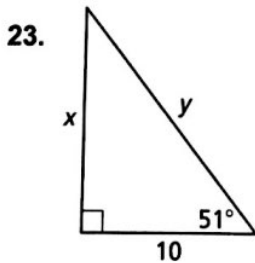
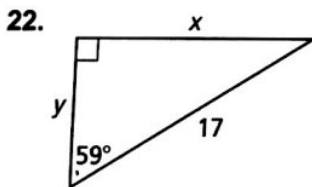


Use the figure. Write your answer as a fraction and as a decimal rounded to the nearest hundredth.

18. $\sin A = \frac{O}{H}$ 19. $\cos A = \frac{A}{H}$
 20. $\sin B = \frac{O}{H}$ 21. $\cos B = \frac{A}{H}$



Find the values of x and y . Round your answer to the nearest tenth.



$17 \cdot \sin 59 = \frac{x}{17}$
 $14.57 \approx 14.6$

$10 \cdot \tan 51 = \frac{x}{10} \cdot 10$

$y \sin 40 = \frac{20}{y}$
 $y \sin 40 = 20$
 $\frac{y \sin 40}{\sin 40} = \frac{20}{\sin 40}$
 $y = 31.1$

$17 \cos 59 = \frac{y}{17}$
 $8.75 = y$
 $8.8 \approx y$

$10 \tan 51 = x$
 $12.348 \approx 12.3$

$y \cos 51 = \frac{10}{y}$
 $y \cos 51 = 10$
 $\frac{y \cos 51}{\cos 51} = \frac{10}{\cos 51}$
 $y = 15.89$

$x \cdot \tan 40 = \frac{20}{x}$
 $x \tan 40 = 20$
 $\frac{x \tan 40}{\tan 40} = \frac{20}{\tan 40}$
 $x = 23.835$

Answers

- 12. $\frac{12}{20}$
0.6
- 13. $\frac{20}{12}$
1.7
- 14. 30.96 = 31
- 15. 59.036 = 59
- 16. 86.9
- 17. 17.5
- 18. $\frac{12}{37}$
0.32
- 19. $\frac{35}{37}$
0.95
- 20. $\frac{35}{37}$
0.95
- 21. $\frac{12}{37}$
0.32
- 22. $x = 14.6$
 $y = 8.8$
- 23. $x = 12.3$
 $y = 15.9$
- 24. $x = 23.8$
 $y = 31.1$