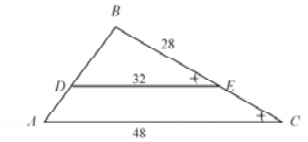
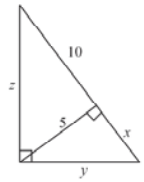
15. Explain why $\Delta ABC \sim \Delta DBE$ and then find BC.

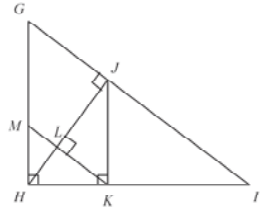


16. Find the geometric mean of the pair of numbers 2 and 8.

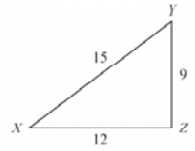
17. Find x, y, and z.



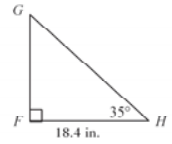
18. Find GI and GH to the nearest hundredth. LK is 3.20 cm and LJ is 3.67 cm.



19. Write the trigonometric ratio for cos X as a fraction and as a decimal rounded to the nearest hundredth.

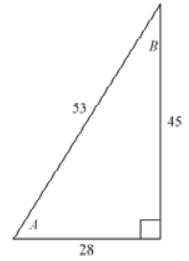


20. Find GH. Round to the nearest hundredth.

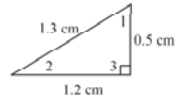


21. Jessie is building a ramp for loading motorcycles onto a trailer. The trailer is 2.8 feet off of the ground. To avoid making it too difficult to push a motorcycle up the ramp, Jessie decides to make the angle between the ramp and the ground 15°. To the nearest hundredth of a foot, find the length of the ramp.

22. Find the sine and cosine of the acute angles in the right triangle.



23. Use the trigonometric ratio $\sin A = 0.38$ to determine which angle of the triangle is $\angle A$.



24. Find $\sin\angle A$ to the nearest hundredth.

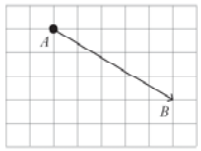
25. Some mountains in the Alps are very steep and have a grade of 42.7%. To the nearest degree, what angle do these mountains make with a horizontal line?

26. The largest Egyptian pyramid is 146.5 m high. When Rowena stands far away from the pyramid, her line of sight to the top of the pyramid forms an angle of elevation of 20° with the ground. What is the horizontal distance between the center of the pyramid and Rowena? Round to the nearest meter.

27. An eagle 300 feet in the air spots its prey on the ground. The angle of depression to its prey is 15°. What is the horizontal distance between the eagle and its prey? Round to the nearest foot.

28. A pilot flying at an altitude of 1.8 km sights the runway directly in front of her. The angle of depression to the beginning of the runway is 31°. The angle of depression to the end of the runway is 23°. What is the length of the runway? Round to the nearest tenth of a kilometer.

29. Write the vector $\overrightarrow{AB}$ in component form.



30. Draw the vector $\langle 6, -3 \rangle$ on the coordinate plane. Find its magnitude to the nearest tenth.

31. Tell whether the transformation appears to be a reflection. Explain.