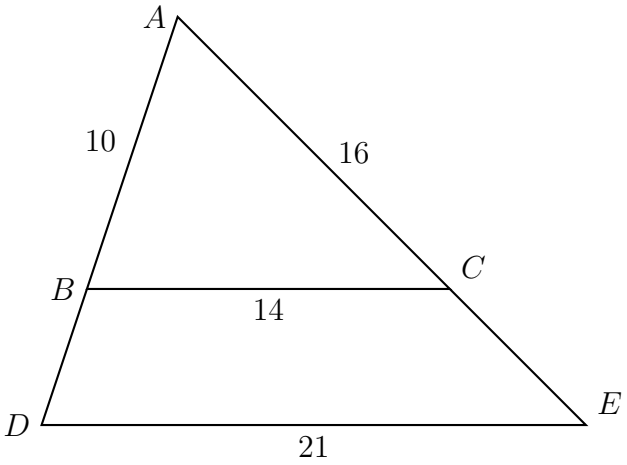
11.14

1. Triangle ABC is dilated with a scale factor of k centered at A, yielding $\triangle ADE$, as shown. Given $AB = 10$, $BC = 14$, $AC = 16$, and $DE = 21$. Find CE.



2. What is an equation of the line that passes through the point $(6, 8)$ and is perpendicular to a line with equation $y = \frac{3}{2}x + 5$?

   (a) $y - 8 = \frac{3}{2}(x - 6)$
   (b) $y - 8 = -\frac{3}{2}(x - 6)$
   (c) $y + 8 = \frac{3}{2}(x + 6)$
   (d) $y + 8 = -\frac{3}{2}(x + 6)$

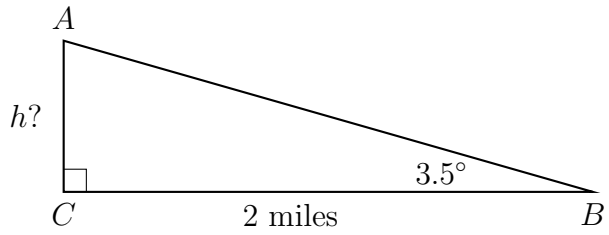
3. A child's tent can be modeled as a pyramid with a square base whose sides measure 60 inches and whose height measures 84 inches. What is the volume of the tent, to the *nearest cubic foot*?

4. The equation of a cirle is $x^2 + y^2 - 2x - 14y = -14$. What are the center and radius of the circle?

5. At a distance of two miles, the angle of elevation to the top of a radio tower is $3.5°$.

   What is the height of the tower, to the *nearest foot*? (1 mile = 5280 feet)

not to scale

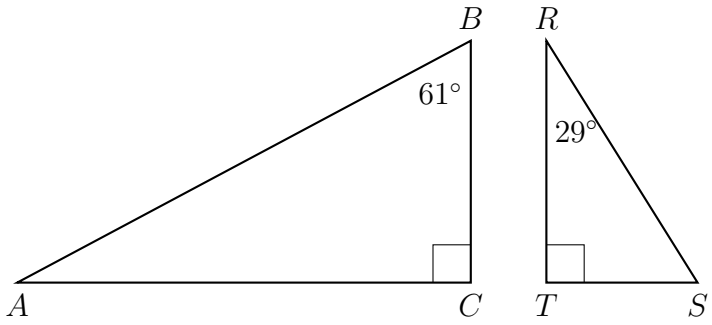


6. Point M divides $\overline{AB}$ so that $AM : MB = 1 : 2$. If A has coordinates $(-1, -3)$ and B has coordinates $(8, 9)$, what are the coordinates of M?

7. If a rectangle is continuously rotated around one of its sides, what is the three-dimensional figure formed?

   (a) cone
   (b) sphere
   (c) cylinder
   (d) rectangular prism

8. Given right triangle ABC with a right angle at C, $m\angle B = 61°$. Given right triangle RST with a right angle at T, $m\angle R = 29°$.



   Which proportion in relation to $\triangle ABC$ and $\triangle RST$ is *not* correct?

   (a) $\dfrac{AB}{RS} = \dfrac{RT}{AC}$
   (b) $\dfrac{BC}{ST} = \dfrac{AB}{RS}$
   (c) $\dfrac{BC}{ST} = \dfrac{AC}{RT}$
   (d) $\dfrac{AB}{AC} = \dfrac{RS}{RT}$