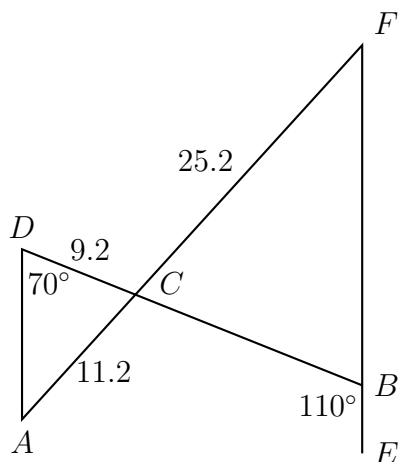## 11.16 Transversal similarity

1. In the diagram below, $\overline{AF}$ and $\overline{DB}$ intersect at $C$, and $\overline{AD}$ and $\overline{FBE}$ are drawn such that m$\angle D = 70°$, m$\angle CBE = 110°$, $DC = 9.2$, $AC = 11.2$, and $FC = 25.2$.



What is the length of $\overline{CB}$?

2. The line represented by $3y = 2x+9$ is dilated by a scale factor of $k$ centered at the origin, such that the image of the line has an equation of $y = -\frac{2}{3}x+6$. What is the scale factor?

3. A rectangular tabletop will be made of solid oak that weighs 47 pounds per cubic foot. The tabletop will have a length of six feet, a width of two and a half feet, and a thickness of two inches. Determine and state the weight of the tabletop, in pounds.

4. The equation of a cirle is $x^2 + y^2 - 8x + 2y = 8$. What are the center and radius of the circle?

5. Directed line segment $DE$ has endpoints $D(3,7)$ and $E(3,-2)$. Point $P$ divides such that $DP : PE$ is $1 : 2$. What are the coordinates of $P$?

6. In the diagram below of $\triangle ROC$ and $\triangle MUS$, angles $C$ and $S$ are right angles, and $\triangle ROC \sim \triangle MUS$
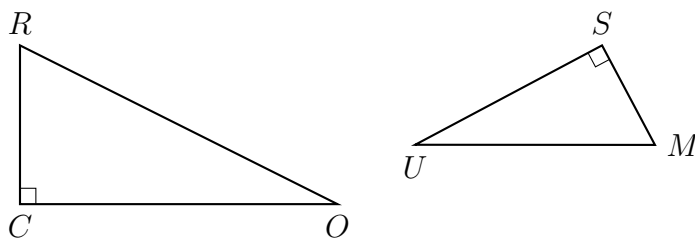


If $RO = 17$ and $RC = 7.5$, what is the measure of $\angle U$, to the *nearest degree*?

7. Directed line segment $DE$ has endpoints $D(-4, -2)$ and $E(1, 8)$. Point $F$ divides such that $DF : FE$ is $2 : 3$. What are the coordinates of $F$?

8. If an right triangle is continuously rotated around one of its legs, which 3-dimensional object is generated?

   (a) cone

   (b) sphere

   (c) pyramid

   (d) prism

9. In diagram below of right triangle $ABC$, altitude $\overline{BD}$ is drawn.
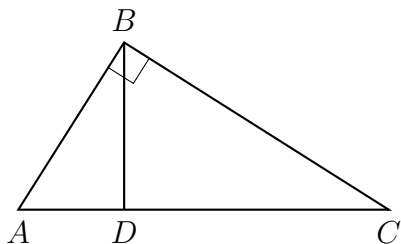


Which ratio is always equivalent to $\sin A$?

   (a) $\dfrac{AB}{BD}$

   (b) $\dfrac{BD}{BC}$

   (c) $\dfrac{CD}{BC}$

   (d) $\dfrac{BC}{AB}$