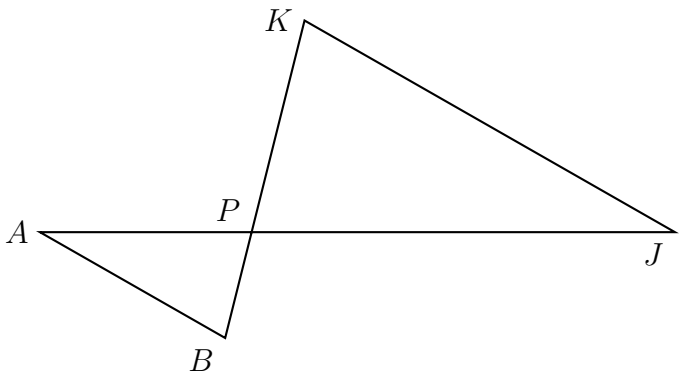
11.17 Rotation plus dilation

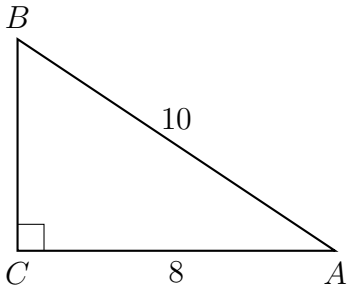
1. Given $\triangle ABP \sim \triangle JKP$ as shown below. $AB = 12.5$, $AP = 13.5$, $BP = 7.1$, and $JP = 32.4$. Find JK.



2. Write an equation of the line that is parallel to the line whose equation is $4y + 8 = 3x$ and passes through the point $(1, -3)$.

3. The base of a pyramid is a rectangle with a width of 11.2 cm and a length of 8.5 cm. What is the height, in centimeters, of the pyramid if its volume is 238 cm^3?

4. In the diagram below of right triangle ABC, $AC = 8$, and $AB = 10$.



Which equation would determine the value of angle A?

(a) $\sin A = \frac{8}{10}$

(b) $\tan A = \frac{8}{6}$

(c) $\cos A = \frac{6}{10}$

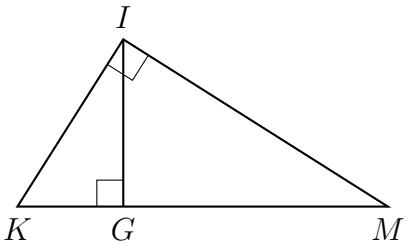
(d) $\tan A = \frac{6}{8}$

5. What is the equation of a circle with center $(4, -2)$ and radius $r = 5$?

6. In a right triangle, the acute angles have the relationship $\sin(3x + 4) = \cos(37)$.

   What is the value of x?

7. In the diagram below of right triangle KMI, altitude $\overline{IG}$ is drawn to hypotenuse $\overline{KM}$.



   IF $KG = 4$ and $IG = 6$, what is the length of $\overline{IM}$?

8. Circle O has chords $\overline{AD}$ and $\overline{BE}$ intersecting at C, as shown. Find AC.