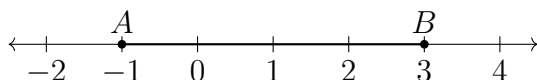


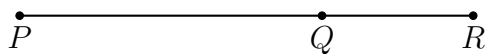
2.7 Test: Solving for length and angle measures

1. Two points $A(-1)$, $B(3)$ and the segment \overline{AB} are shown on the number line.

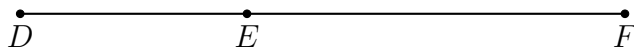


What is the length of the segment \overline{AB} ? Show your work as an equation.

2. Given \overline{PQR} , $PQ = 7\frac{1}{4}$, and $QR = 3\frac{3}{4}$. Find PR .



3. Given \overline{DEF} , $DE = x + 6$, $EF = 4x + 7$, $DF = 18$. Find DE .

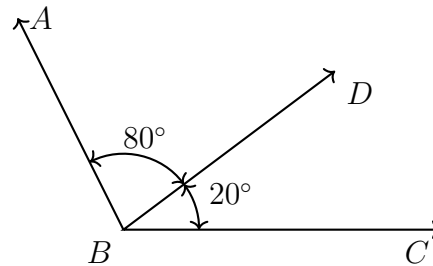


4. Apply the Angle Addition postulate. Write an equation to support your work.

Given $m\angle ABD = 80^\circ$ and

$m\angle DBC = 20^\circ$.

Find $m\angle ABC$.

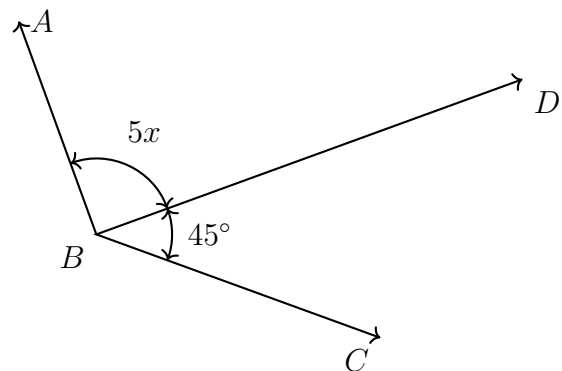


5. Given the angle measures and situation shown, write an equation and solve for x .

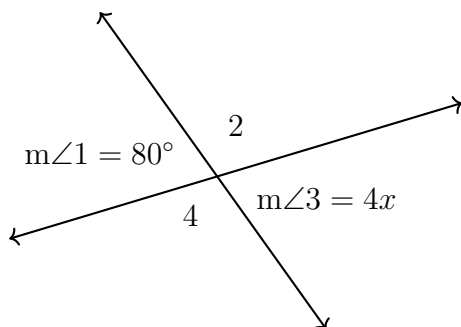
$m\angle ABD = 5x$

$m\angle DBC = 45^\circ$

$m\angle ABC = 145^\circ$



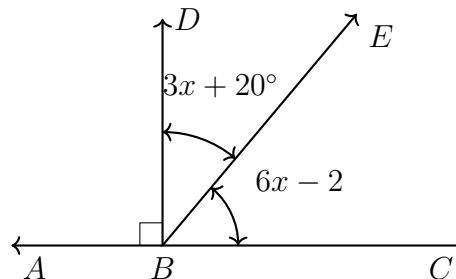
6. Two lines intersect with $m\angle 1 = 80^\circ$ and $m\angle 3 = 4x$. Find x .



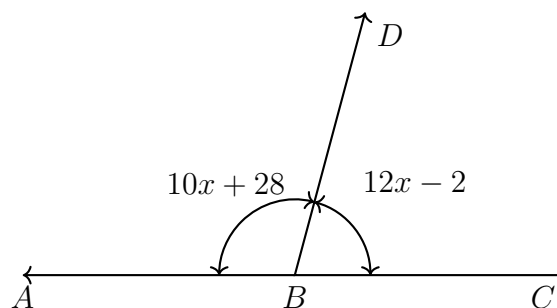
7. Given the angle measures and perpendicular situation shown, $\overrightarrow{BD} \perp \overrightarrow{ABC}$. Find x .

$$m\angle DBE = 3x + 20^\circ$$

$$m\angle EBC = 6x - 2^\circ$$

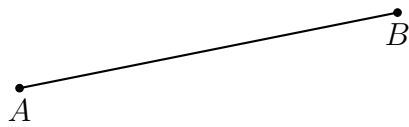


8. A linear pair have measures $m\angle ABD = 10x + 28^\circ$ and $m\angle DBC = 12x - 2^\circ$.
Find $m\angle ABD$. Check your answer.

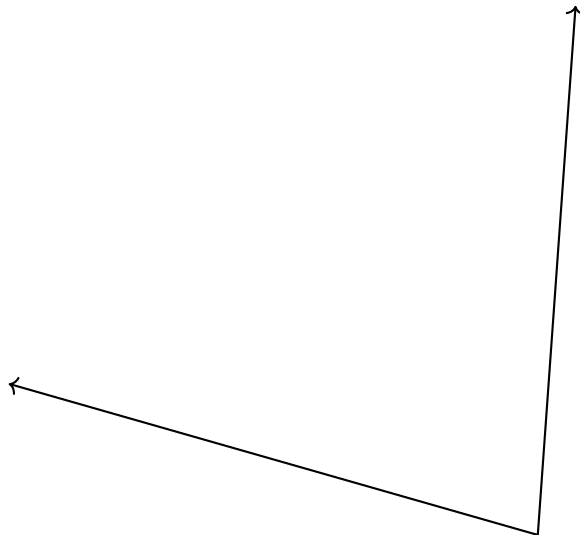


9. Triangle ABC has angle measures $m\angle A = 45^\circ$, $m\angle B = 60^\circ$. Find the measure of the third angle, $m\angle C$.

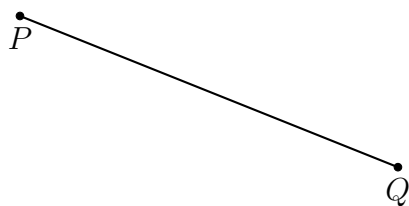
10. Construct an equilateral triangle with one side \overline{AB} .



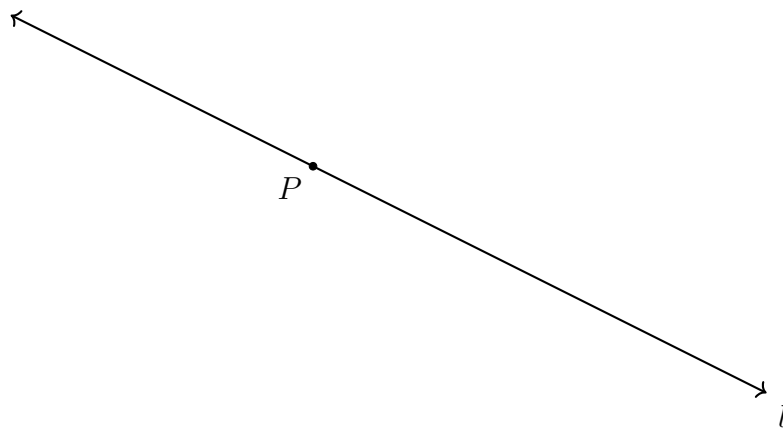
11. Construct an angle bisector of the given angle.



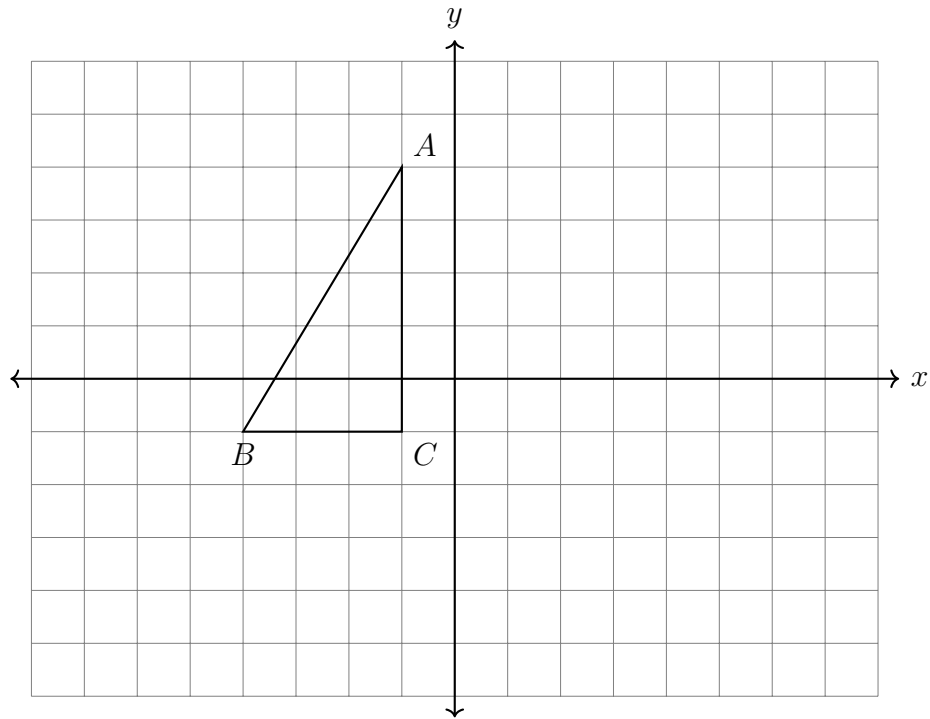
12. Construct a perpendicular bisector of \overline{PQ} .



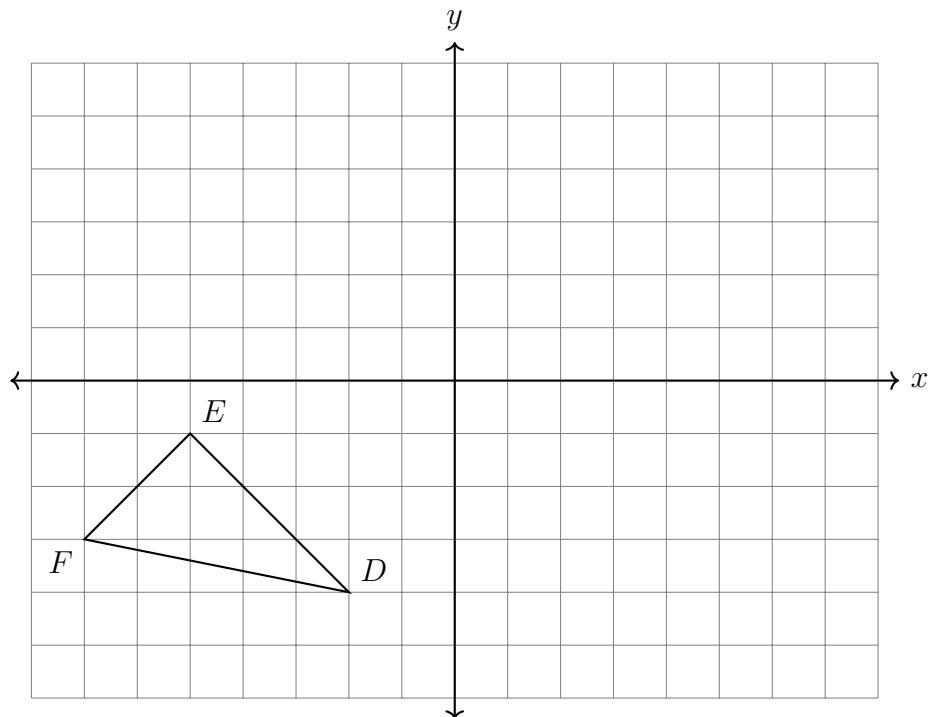
13. Construct a perpendicular to line l through the point P .



14. Translate $\triangle ABC$ right six and down two units. Label the image $\triangle A'B'C'$.



15. Reflect $\triangle DEF$ across the y -axis, labeling the image $\triangle D'E'F'$.

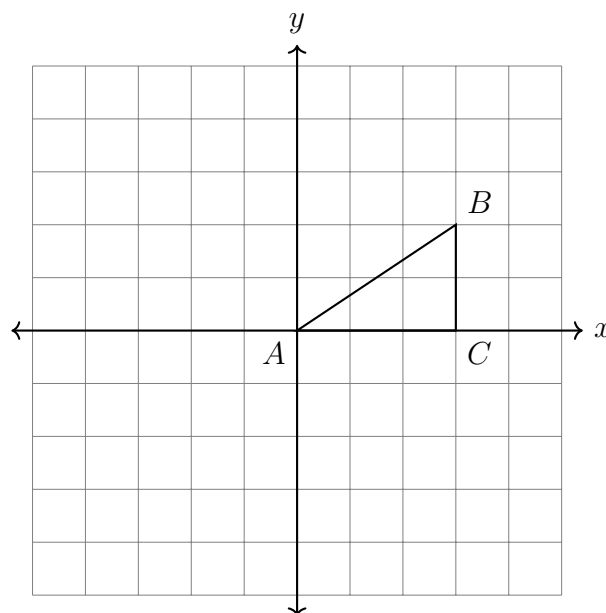


16. Rotate the triangle 90° counterclockwise around the origin, $\triangle ABC \rightarrow \triangle A'B'C'$. Complete the table of the coordinates and plot and label the image on the grid.

$A(0, 0) \rightarrow$

$B(3, 2) \rightarrow$

$C(3, 0) \rightarrow$



17. A reflection maps $P(7, -3)$ onto $P'(7, 3)$. Is the reflection across the x -axis or the y -axis?
18. Specify the translation that maps $Q(11, -2) \rightarrow Q'(6, 7)$.
19. Triangle $X'Y'Z'$ is the image of triangle XYZ after a translation. Which triangle is larger, or are they the same size? Justify your answer.

20. Simplify each expression by combining like terms. (exact answers only, no decimals)

(a) $6x + 4 - 3x + 2$

(c) $4 + 6\pi + 8 - 2\pi$

(b) $-3y^2 - 5y + 7y + 2y^2$

(d) $10x - 6x + 3\sqrt{7} + 4\sqrt{7}$

21. Use the function $f(x) = \frac{1}{2}x + 5$ to answer the questions.

(a) What is $f(0)$?

(c) What is x when $f(x) = 15$?

(b) Find $f(-2)$

22. Solve each equation for x . Then check your answer.

(a) $3x + 4x - 15 = 34$

(b) $6x - 9 = 7x - 12$