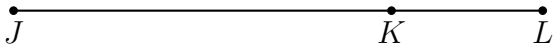
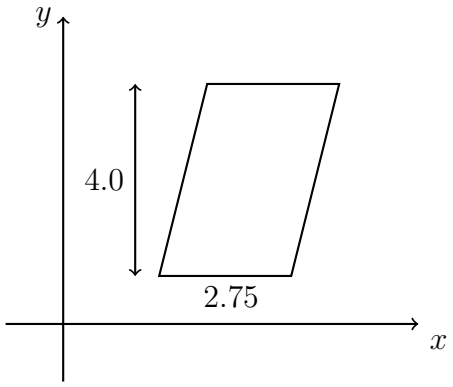
4.10 Exam: Skills so far this year

1. Given $\overline{JKL}$, $JK = 7.4$, and $KL = 1.3$. Find JL.

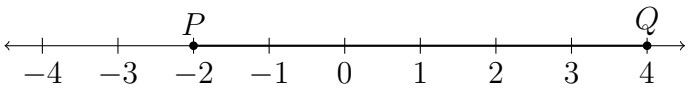
   Show your work by marking the diagram and writing an equation.



2. A parallelogram is shown on the x-y plane having a base $b = 2.75$ and height $h = 4.0$. Find its area, showing the calculation.



3. Subtract to find the length between $P(-2)$ and $Q(4)$. Count as a check.

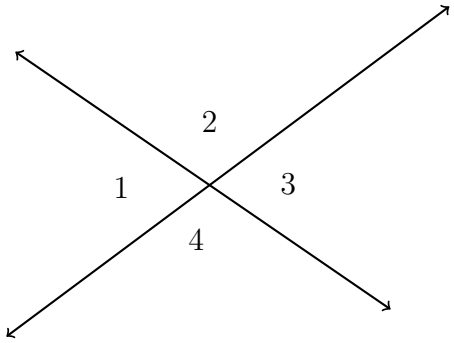


4. As shown below, two lines intersect making four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$.

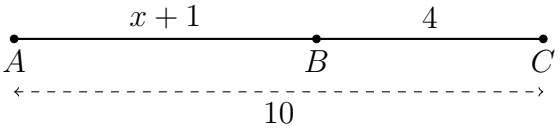
   Given $m\angle 2 = 120°$.

   (a) Find $m\angle 3$

   (b) Find $m\angle 4$

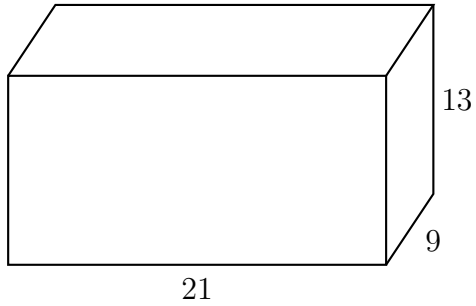


5. Given $\overline{ABC}$, $AB = x + 1$, $BC = 4$, $AC = 10$. Find x.



6. Find the volume of a rectangular prism (box). Its length is $l = 21$ inches, its height $h = 13$ inches, and depth is $w = 9$ inches. Start with the equation

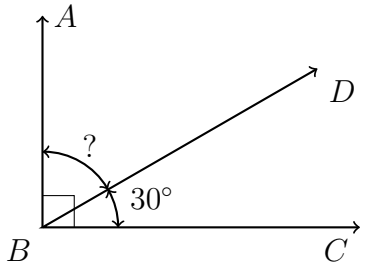
   $V = l \times w \times h$



7. Apply the Angle Addition postulate. Write and equation to support your work.

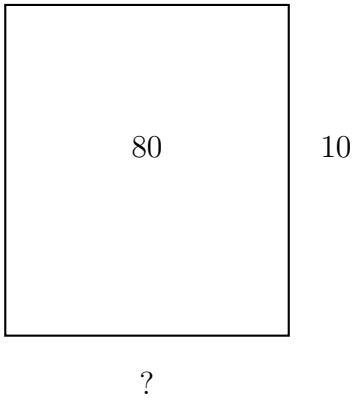
Given $m\angle CBD = 30°$, $m\angle ABC = 90°$.

Find $m\angle ABD$.



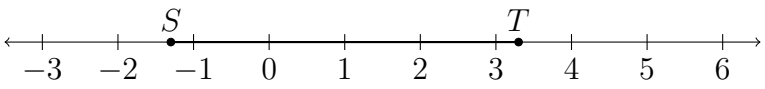
8. Find the length of the base of a rectangle with area $A = 80$ and height $h = 10$. Start with the form (use b or x):

   $A = b \times h = 80$



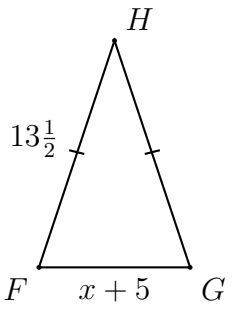
9. Given $S(-1.3)$ and $T(3.3)$, as shown on the number line.

   Mark and label the midpoint M that bisects $\overline{ST}$.



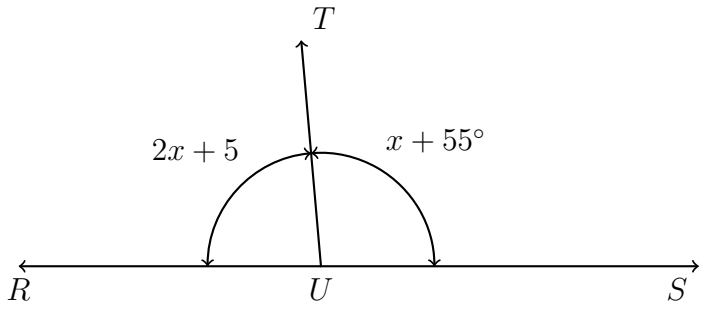
10. The perimeter of the isosceles $\triangle FGH$ is 35 with $\overline{FH} \cong \overline{GH}$. If $FG = x + 5$ and $FH = 13\frac{1}{2}$, find x.

    Show your work with an equation for full credit.



11. A linear pair is formed by two angles, $m\angle RUT = 2x + 5$ and $m\angle SUT = x + 55°$.

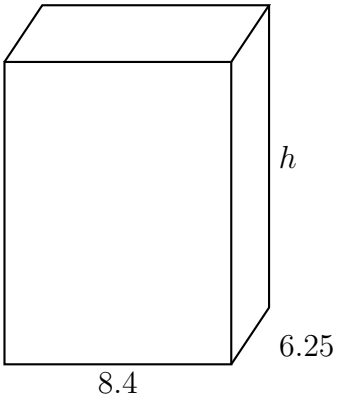
    Write an equation, then solve for x.



12. The rectangular prism shown has a volume of $V = 735$ cubic feet. Its base measures $l = 8.4$ feet by $w = 6.25$ feet.

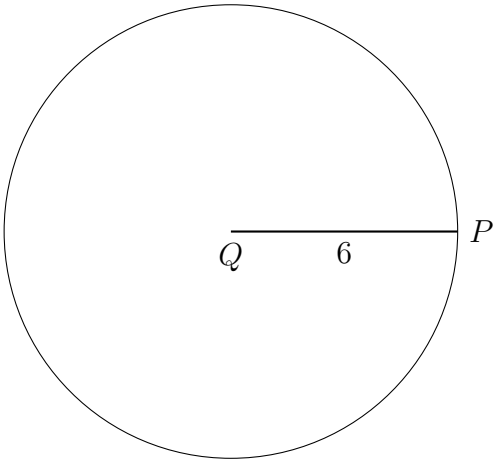
    Find its height. Begin by writing the following formula with values substituted:

    $V = l \times w \times h = 735$



13. Find the area of circle Q with radius $r = 6$ centimeters, rounded to the *nearest tenth*. Start with the formula

$A = \pi r^2$

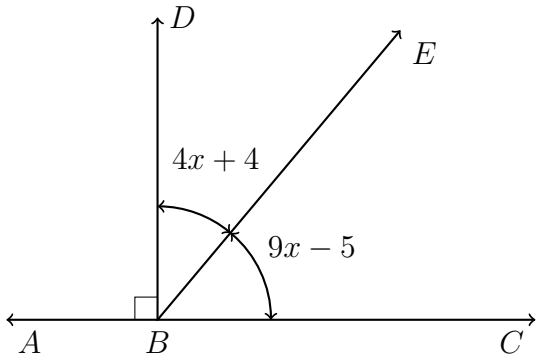


14. In the diagram shown, $\overrightarrow{BD} \perp \overleftrightarrow{ABC}$ and angle measures are given.

Find x. Show the check for full credit.

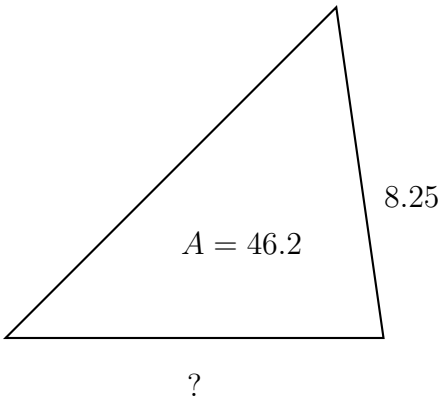
$m\angle DBE = 4x + 4°$

$m\angle EBC = 9x - 5°$



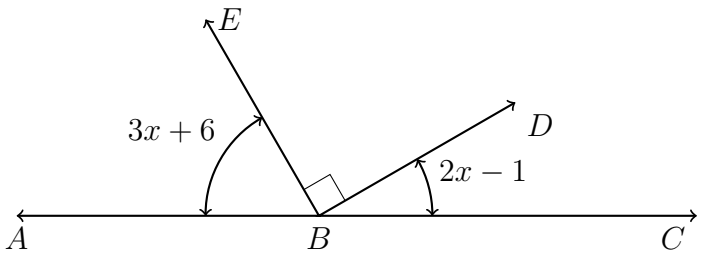
15. Find the length of the base of a triangle with area $A = 46.2$ and height $h = 8.25$. Express your result as a decimal. Start with the form (use b or x):

$A = \frac{1}{2} \times b \times h = 46.2$

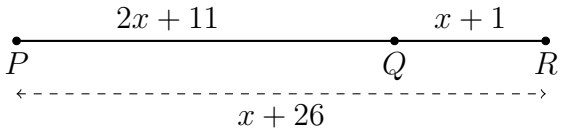


16. Given $\overleftrightarrow{ABC}$, right angle $\angle DBE$, $m\angle ABE = 3x + 6$, and $m\angle DBC = 2x - 1$.

Find $m\angle ABE$.



17. Given $\overline{PQR}$, $PQ = 2x + 11$, $QR = x + 1$, $PR = x + 26$. Find x.



(a) Write down an equation to represent the situation.

(b) Solve for x.

(c) Check your answer.

18. Ray $\overrightarrow{BF}$ is the angle bisector of $\angle ABC$. Given that the angle measures are $m\angle ABF = 7x - 14$ and $m\angle CBF = 5x + 10$.

    Find x.