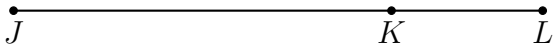
4.10 Exam: Skills so far this year

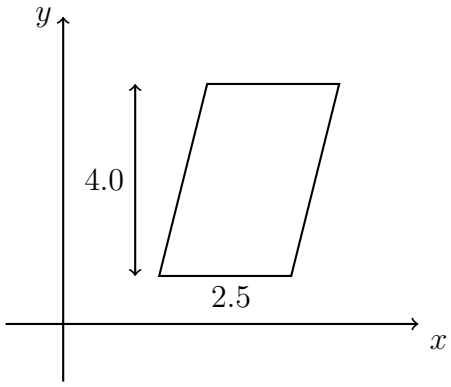
1. Given $\overline{JKL}$, $JK = 5.4$, and $KL = 1.1$. Find JL.

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

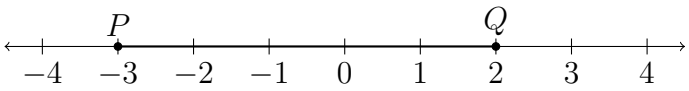


Write your final answer
in the box on all problems.

2. A parallelogram is shown on the x-y plane having a base $b = 2.5$ and height $h = 4.0$. Find its area, showing the calculation.



3. Subtract to find the length between $P(-3)$ and $Q(2)$. Take the absolute value if necessary since lengths are positive numbers.

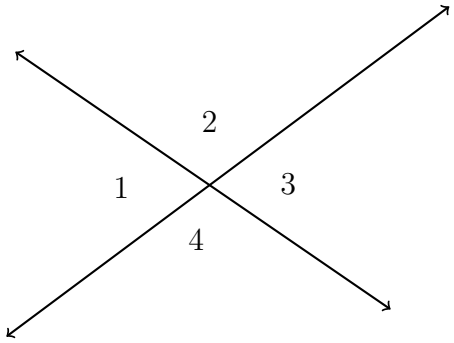


4. As shown below, two lines intersect making four angles: $\angle 1$, $\angle 2$, $\angle 3$, and $\angle 4$.

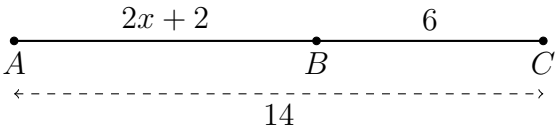
   Given $m\angle 2 = 105°$.

   (a) Find $m\angle 3$

   (b) Find $m\angle 4$

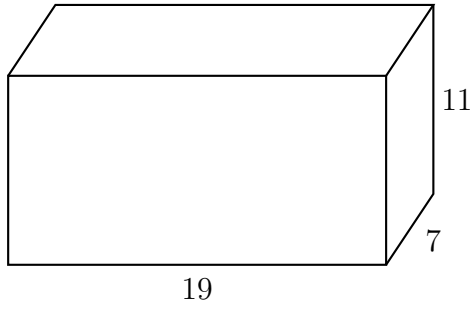


5. Given $\overline{ABC}$, $AB = 2x + 2$, $BC = 6$, $AC = 14$. Find x.



6. Find the volume of a rectangular prism (box). Its length is $l = 19$ inches, its height $h = 11$ inches, and depth is $w = 7$ inches. Start with the equation

   $V = l \times w \times h$

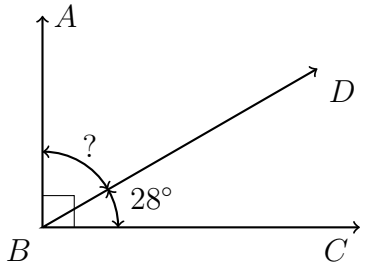


Do not write units in the box,
just the value.

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

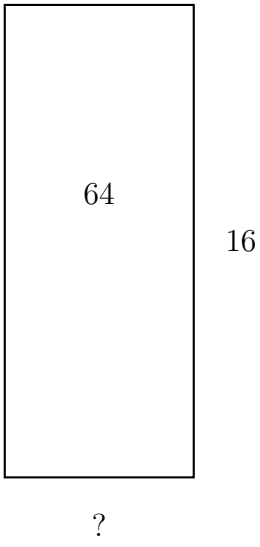
Given $m\angle CBD = 28°$, $m\angle ABC = 90°$.

Find $m\angle ABD$.



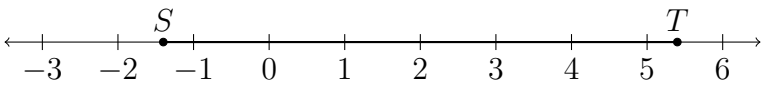
8. Find the length of the base of a rectangle with area $A = 64$ and height $h = 16$. Start with the form (use b or x):

   $A = b \times h = 64$



9. Given $S(-1.4)$ and $T(5.4)$, as shown on the number line.

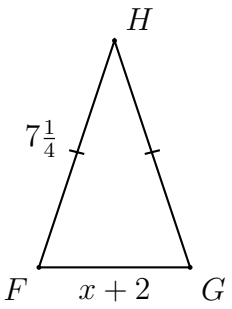
   Mark and label the midpoint M that bisects $\overline{ST}$.



Write the value of M in the box.

10. The perimeter of the isosceles $\triangle FGH$ is $18\frac{1}{2}$ with $\overline{FH} \cong \overline{GH}$. If $FG = x + 2$ and $FH = 7\frac{1}{4}$, find x.

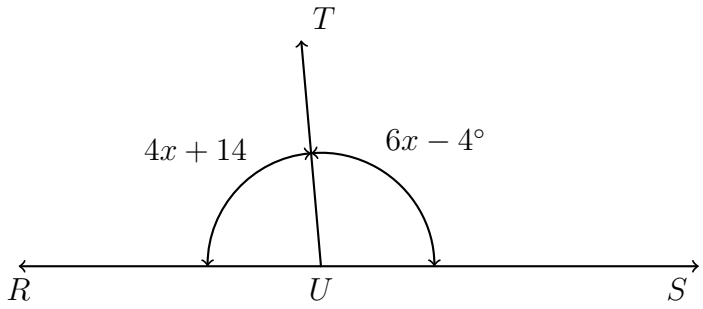
    Show your work with an equation.



Write the value of x in the box.

11. A linear pair is formed by two angles, $m\angle RUT = 4x + 14$ and $m\angle SUT = 6x - 4°$.

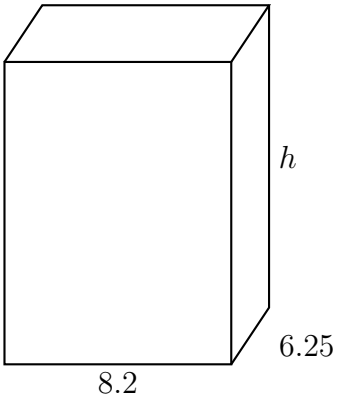
    Write an equation, then solve for x.



12. The rectangular prism shown has a volume of $V = 615$ cubic feet. Its base measures $l = 8.2$ feet by $w = 6.25$ feet.

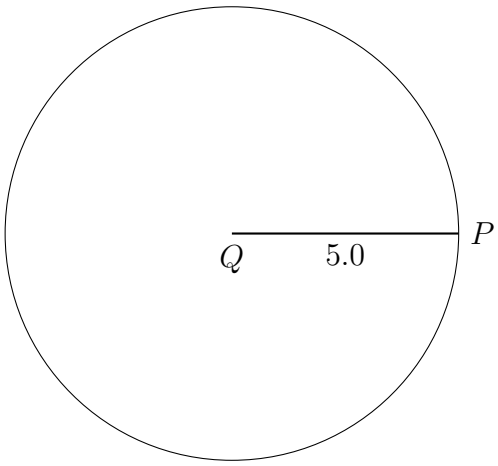
    Find its height. Begin by writing the following formula with values substituted:

    $V = l \times w \times h = 615$



13. Find the area of circle Q with radius $r = 5.0$ centimeters, rounded to the *nearest tenth*. Start with the formula

$A = \pi r^2$

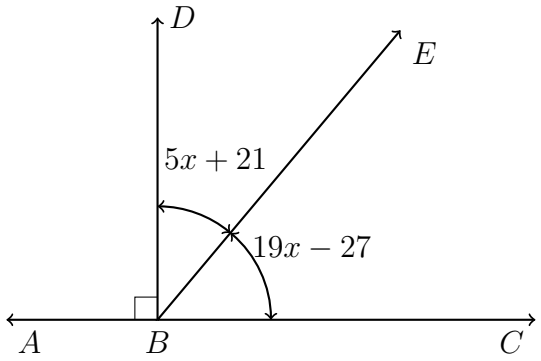


14. In the diagram shown, $\overrightarrow{BD} \perp \overleftrightarrow{ABC}$ and angle measures are given.

Find x.

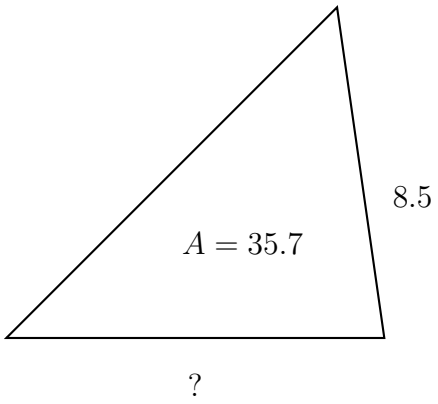
$m\angle DBE = 5x + 21°$

$m\angle EBC = 19x - 27°$



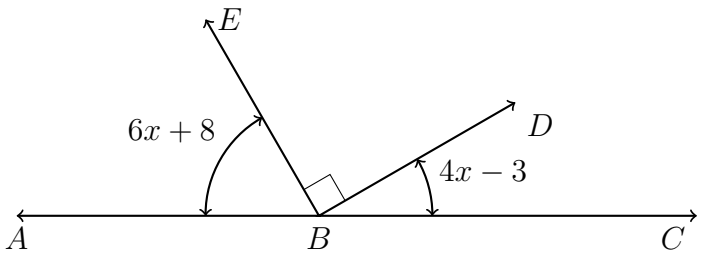
15. Find the length of the base of a triangle with area $A = 35.7$ and height $h = 8.5$. Express your result as a decimal. Start with the form (use b or x):

$A = \frac{1}{2} \times b \times h = 35.7$



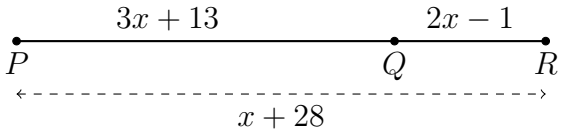
16. Given $\overleftrightarrow{ABC}$, right angle $\angle DBE$, $m\angle ABE = 6x + 8$, and $m\angle DBC = 4x - 3$.

Find x.



Write the value of x as a decimal.

17. Given $\overline{PQR}$, $PQ = 3x + 13$, $QR = 2x - 1$, $PR = x + 28$. Find x.



18. Ray $\overrightarrow{BF}$ is the angle bisector of $\angle ABC$. Given that the angle measures are $m\angle ABF = 8x - 14$ and $m\angle CBF = 6x + 8$.

    Find x.