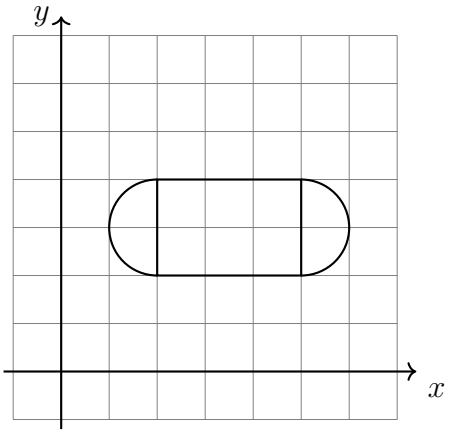
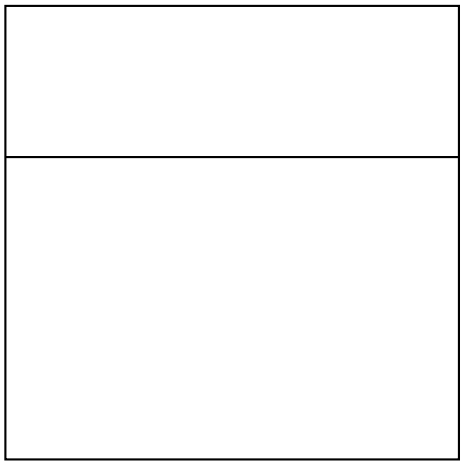
1.8 Classwork: Area of rectangles, triangles, parallelograms

1. Find the *area* of the shape shown below composed of a rectangle and two semi-circular caps. Leave your answer as an exact value in terms of π.



2. A square is partitioned into two rectangles. The sum of the perimeters of the two rectangles is 36. Find the area of the square.



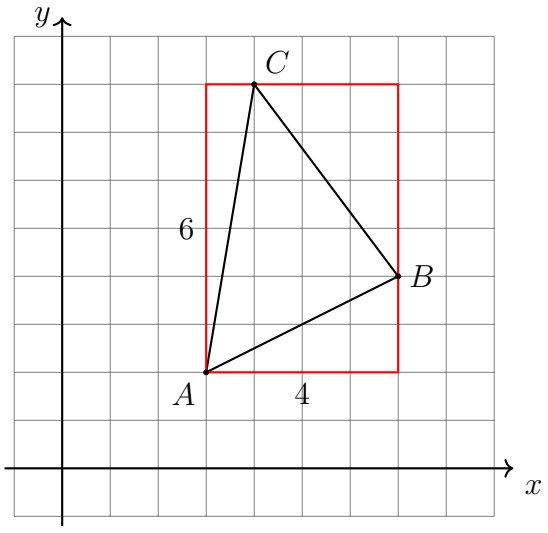
3. Find the circumference of the earth's orbit around the sun.

4. Spicy: Find the area of the $\triangle ABC$ is shown below with $A(3,2)$, $B(7,4)$, and $C(4,8)$.

   (a) First find the area of the red rectangle with sides $b = 4$, $h = 6$.

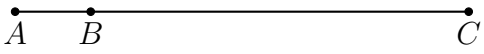
   (b) Find the area of the three triangles surrounding $\triangle ABC$ in the rectangle.

   (c) Subtract their areas from the rectangle to find $A_{\triangle ABC}$



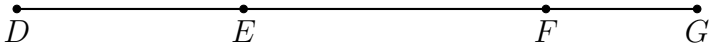
5. Given $\overline{ABC}$, $AB = \frac{2}{3}$, and $AC = 3\frac{1}{3}$.

   Find BC.



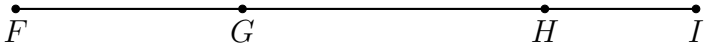
6. Given $\overline{DEFG}$, $DE = 3\frac{1}{4}$, $EF = 6\frac{1}{4}$, and $FG = 1\frac{3}{4}$. (diagram not to scale)

   Find DG, expressed as a fraction, not a decimal.

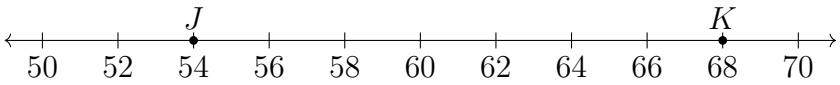


7. Given $\overline{FGHI}$, $FG = 8\frac{1}{6}$, $GH = 12\frac{1}{3}$, and $HI = 5\frac{1}{2}$. (diagram not to scale)

   Find FI.

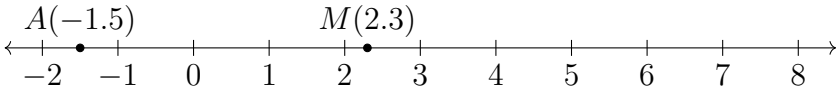


8. Given $\overleftrightarrow{JK}$ as shown on the number line.

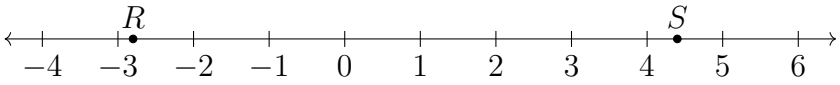


   What is the midpoint between the points J and K?

9. The point $M(2.3)$ is the midpoint of segment $\overline{AB}$. Given $A(-1.5)$, find the value of B. Mark and label it below.



10. Given $\overleftrightarrow{RS}$ as shown on the number line, with $R = -2.8$ and $S = 4.4$.



The points T and U trisect $\overline{RS}$. Find their values, and mark and label them on the number line.

11. Given $\overline{PQR}$, with $PQ = \frac{1}{2}x + 4$, $QR = x + 3$, and $PR = 2x + 5$. Find PR.