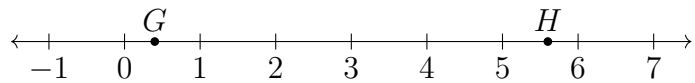**5.7 Final exam: Create equations to solve problems**   **HSA.CED.A1**
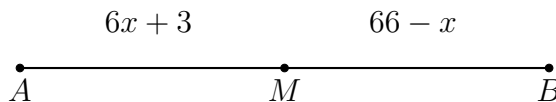
1. Find GH, given $G = 0.4$ and $H = 5.6$.

$$\xleftarrow{\quad}\!\!\underset{-1\quad 0\quad 1\quad 2\quad 3\quad 4\quad 5\quad 6\quad 7}{\overset{G\qquad\qquad\qquad\qquad\qquad H}{\rule{0pt}{0pt}}}\!\!\xrightarrow{\quad}$$

2. Given $\overline{ABC}$, $AB = 2\frac{1}{2}$, and $BC = 5\frac{3}{4}$. Find AC.

$$\underset{A\qquad\qquad B\qquad\qquad\qquad\qquad\qquad C}{\rule{0pt}{0pt}}$$
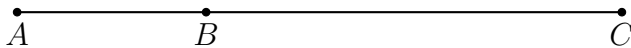
3. Given M is the midpoint of $\overline{AB}$, $AM = 6x + 3$, $MB = 66 - x$. Find x.

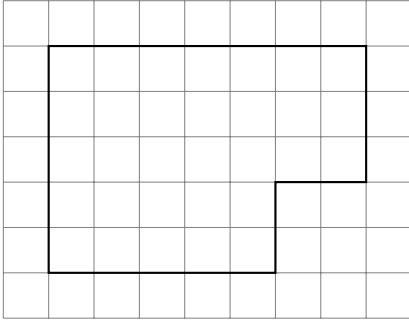$$\overset{6x+3\qquad\qquad\qquad 66-x}{\underset{A\qquad\qquad\qquad M\qquad\qquad\qquad B}{\rule{0pt}{0pt}}}$$

4. Given isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$. $AC = 4x + 20$ and $BC = 7x + 11$. Find AC.

$4x + 20$ $\qquad$ $7x + 11$
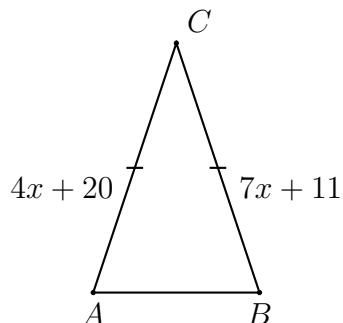
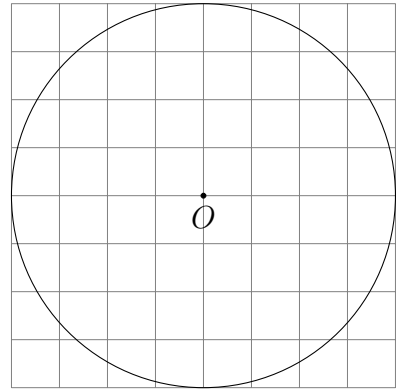**Compute areas and perimeters**   **HSG.GPE.B.7**
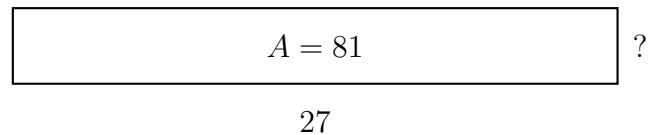
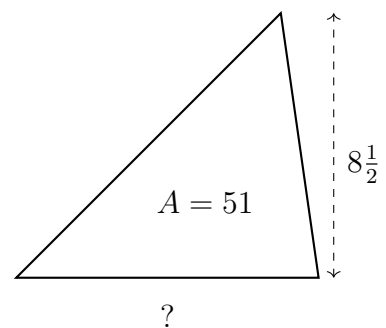5. Find the area A of the shape shown below in terms of unit squares.

6. Given the circle O with radius $r = 4$. Find the area of the circle in terms of π.

7. Find the width of a rectangle with area $A = 81$ and length $l = 27$.

$$A = 81$$

?

27

8. Find the length of the base of a triangle with area $A = 51$ and height $h = 8\frac{1}{2}$.
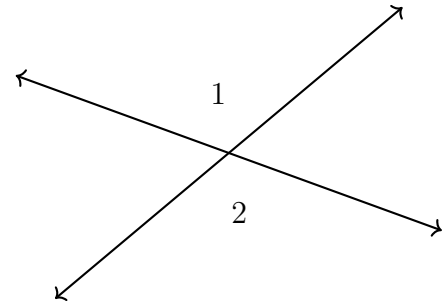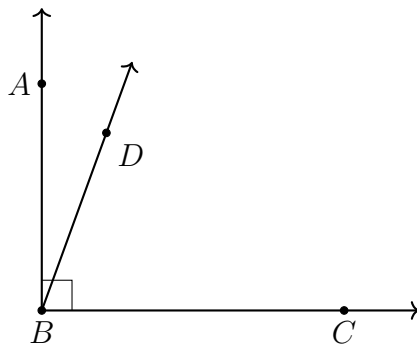
$8\frac{1}{2}$

$A = 51$

?

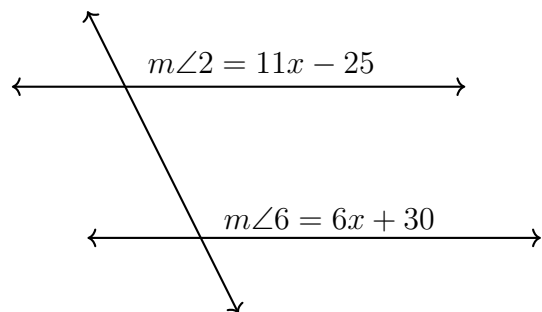**Solve equations in one variable (show the check)** **8.EE.C.7**

9. Given two vertical angles as shown, $m\angle 1 = 2x - 20$, and $m\angle 2 = x + 65$. Find x.

10. Given $\overrightarrow{BA} \perp \overrightarrow{BC}$, $m\angle ABD = 2x - 18$, and $m\angle DBC = 4x$. Find x.
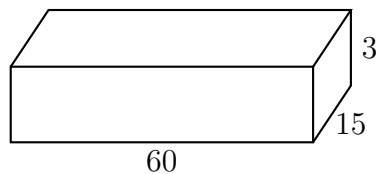
11. Two parallel lines intersect a transversal, shown. Given the corresponding angles $m\angle 2 = 11x - 25$ and $m\angle 6 = 6x + 30$. Find x.

$$m\angle 2 = 11x - 25$$

$$m\angle 6 = 6x + 30$$

Solids, use volume formulas   HSG.GMD.A.3

12. Find the volume of a pool in the shape of a rectangular prism with length $l = 60$ feet, width $w = 15$ feet, and depth $d = 3$ feet.

3

15

60

13. Find the volume of the sphere with a radius of 3 centimeters to the *nearest whole cubic centimeter*.

14. The rectangular prism shown has a volume of $V = 1122$ cubic centimeters. Its base measures $l = 7.5$ cm by $w = 6.8$ cm. Find its height in centimeters.

h

6.8

7.5
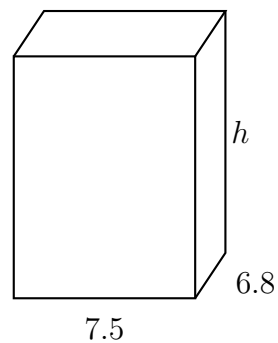
Modeling with geometry: density   HSG.MG.A.2

15. Find the population density of New York City in people per square mile rounded to *the nearest thousand.*

Population at 2020 census: 8,800,000

Land area: 300 square miles