

Name:

S. L. Davis

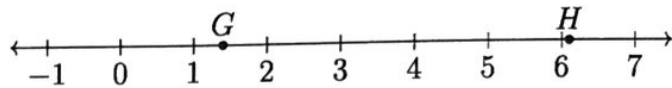
5.6 Exam review: Create equations to solve problems

HSA.CED.A1

1. Find GH , given $G = 1.4$ and $H = 6.1$.

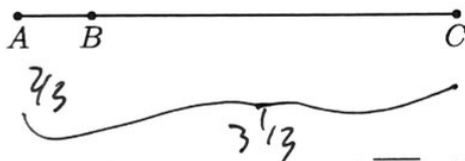
$$GH = |6.1 - 1.4|$$

$$= 4.7$$



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

Find BC .

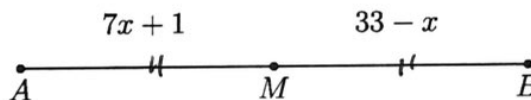


$$AB + BC = AC$$

$$\frac{2}{3} + x = 3\frac{1}{3}$$

$$x = 3\frac{1}{3} - \frac{2}{3} = 2\frac{2}{3}$$

3. Given M is the midpoint of \overline{AB} , $AM = 7x + 1$, $MB = 33 - x$. Find x .



$$7x + 1 = 33 - x$$

$$8x = 32$$

$$x = 4$$

$-1, +x$

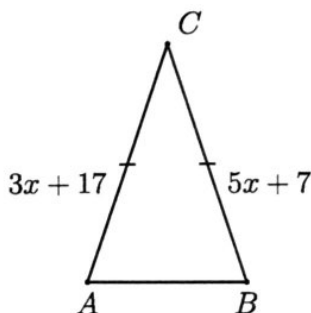
$\div 8$

check

$$7(4) + 1 = 33 - (4)$$

$$29 = 29 \checkmark$$

4. Given isosceles $\triangle ABC$ with $\overline{AC} \cong \overline{BC}$. $AC = 5x + 7$ and $BC = 3x + 17$. Find AC .



$$5x + 7 = 3x + 17$$

$$2x = 10$$

$$x = 5$$

$$AC = 5(5) + 7$$

$$= 32$$

$$BC = 3(5) + 17$$

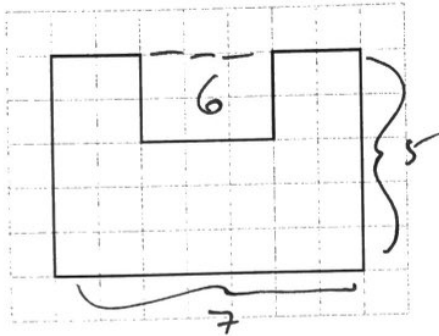
$$= 32$$

$$32 = 32 \checkmark$$

Compute areas and perimeters

HSG.GPE.B.7

5. Find the area A of the shape shown below in terms of unit squares.



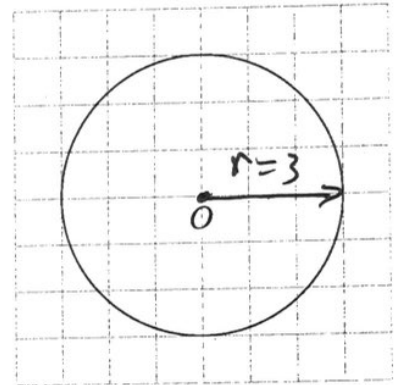
$$A = 5 \times 7 - 6$$

$$= 29$$

6. Given the circle O with radius $r = 3$. Find the area of the circle in terms of π .

$$A = \pi(3^2)$$

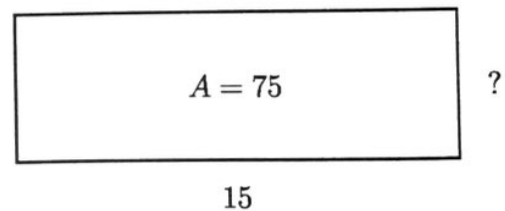
$$= 9\pi$$



7. Find the width of a rectangle with area $A = 75$ and length $l = 15$.

$$A = 15w = 75$$

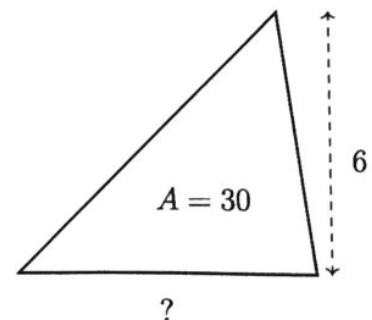
$$w = 5$$



8. Find the length of the base of a triangle with area $A = 30$ and height $h = 6$.

$$A = \frac{1}{2}x(6) = 30$$

$$x = 10$$



Name:

Solve equations in one variable

8.EE.C.7

9. Given two vertical angles as shown, $m\angle 1 = 2x - 30$, and $m\angle 2 = x + 20$. Find x .

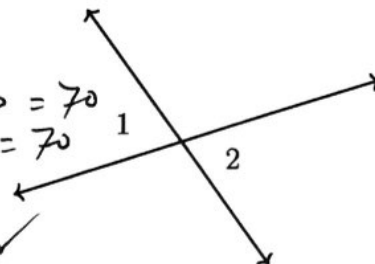
$$2x - 30 = x + 20$$

$$x = 50$$

$$m\angle 1 = 2(50) - 30 = 70$$

$$m\angle 2 = 50 + 20 = 70$$

$$70 = 70 \checkmark$$

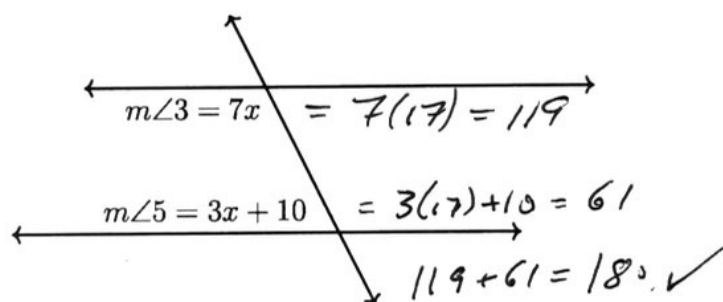


10. Given two parallel lines and a transversal, with same-side interior angles $m\angle 3 = 7x$ and $m\angle 5 = 3x + 10$. Solve for x .

$$7x + 3x + 10 = 180$$

$$10x = 170$$

$$x = 17$$

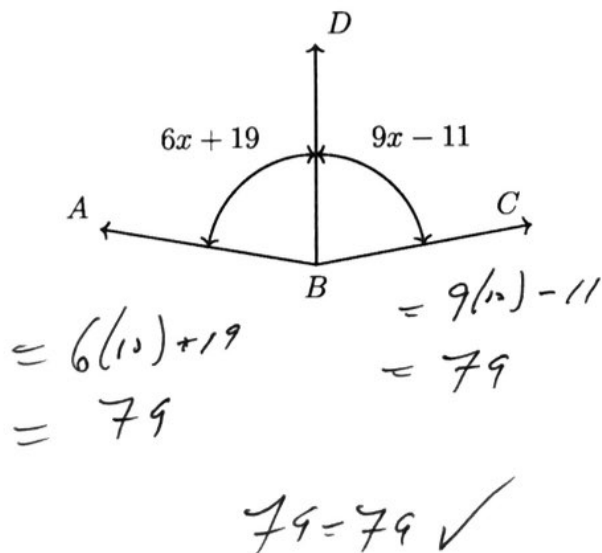


11. The ray \overrightarrow{BD} is the angle bisector of $\angle ABC$. Given that the angle measures are $m\angle ABD = 6x + 19$ and $m\angle CBD = 9x - 11$, find x .

$$6x + 19 = 9x - 11$$

$$30 = 3x$$

$$x = 10$$



Solids, use volume formulas

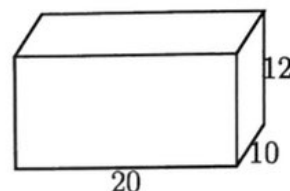
HSG.GMD.A.3

12. Find the volume of a rectangular prism volume of water. Its length is $l = 20$ feet, its height $h = 12$ feet, and depth is $w = 10$ feet. Start with the equation

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

$$= 20 \times 10 \times 12$$

$$= 2400$$



13. A sphere has a radius of 5 centimeters. Find the volume of the sphere.

$$V = \frac{4}{3} \pi (5^3) = 523.5987...$$

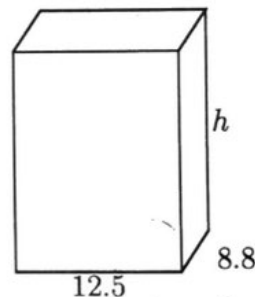
$$\approx 524 \text{ cm}^3$$

14. The rectangular prism shown has a volume of $V = 1815$ cubic centimeters. Its base measures $l = 12.5$ cm by $w = 8.8$ cm. Find its height in centimeters.

$$V = 12.5 \times 8.8 \times h = 1815$$

$$h = \frac{1815}{12.5 \times 8.8}$$

$$= 16.5$$



Modeling with geometry: density

HSG.MG.A.2

15. Find the population density of Staten Island, New York (Richmond County) in people per square mile.

Population estimate July 1, 2019: 476,143 Land area in square miles: 58.37

$$D = \frac{476,143}{58.37} = 8157.3232...$$

$$\approx 8160 \text{ people/sq mile}$$