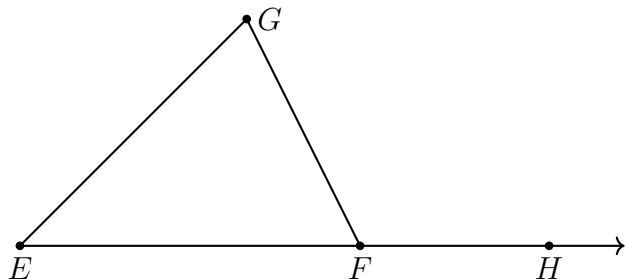


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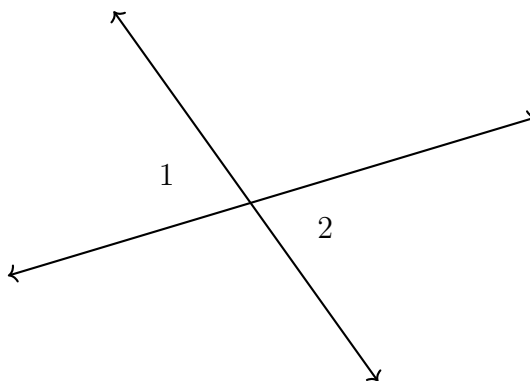
**9.6 Classwork: Mixed review**

**CCSS.HSG.SRT.B.5**

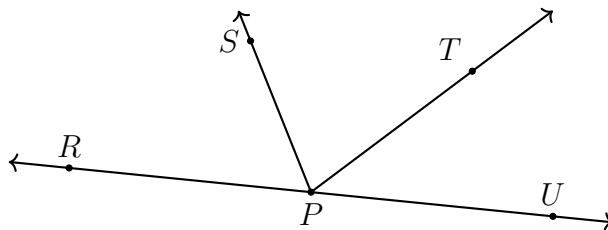
1. Given  $m\angle E = 44$ , and  $m\angle GFH = 112$ . Find  $m\angle G$ .



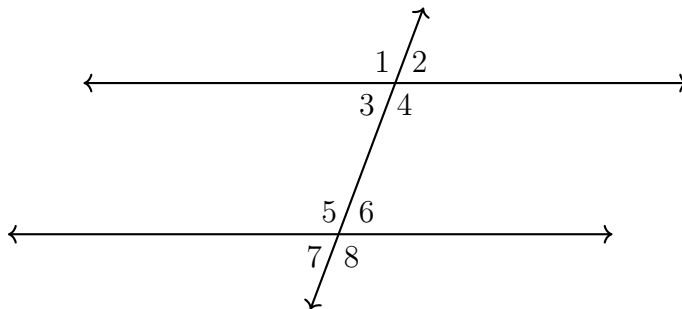
2. Given two vertical angles,  $m\angle 1 = 4x + 5$ ,  $m\angle 2 = \frac{9x - 7}{2}$ . Find  $m\angle 1$ .  
For full credit, check by comparing to  $m\angle 2$ .



3. Given the situation in the diagram, answer each question. Circle True or False.

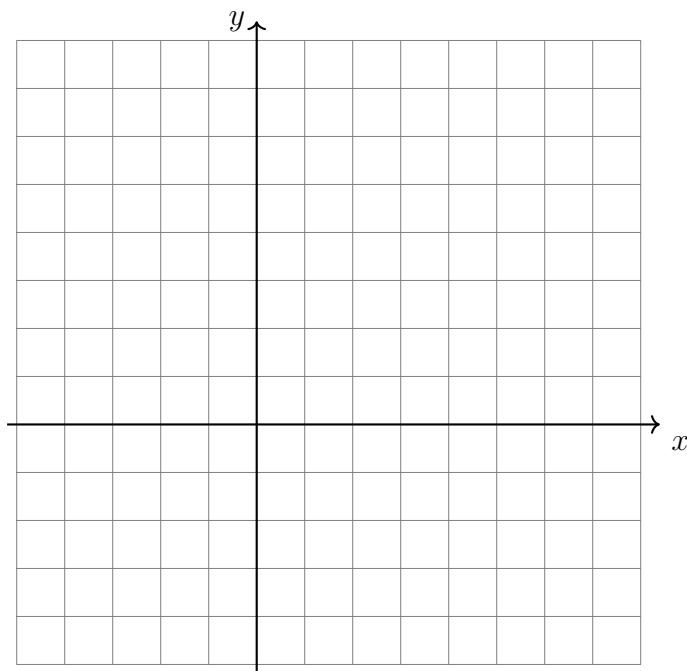


- (a) True or False:  $\angle SPU$  is an obtuse angle.
- (b) True or False:  $\overrightarrow{SP}$  and  $\overrightarrow{PS}$  are opposite rays.
- (c) True or False:  $\angle RPT$  and  $\angle TPU$  are a linear pair.
- (d) True or False:  $\angle SPT$  and  $\angle RPS$  are adjacent.
4. Given two parallel lines and a transversal, as shown. Apply the theorem, "If a transversal intersects two parallel lines, then corresponding angles are congruent."



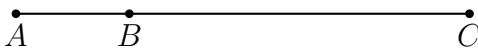
- (a) State the angle corresponding with  $\angle 7$ .
- (b) Given  $m\angle 2 = 68^\circ$ . Find  $m\angle 3$ .
- (c) In a proof, what reason would justify  $\angle 4 \cong \angle 5$ ? \_\_\_\_\_
- (d) Given  $m\angle 5 = 112^\circ$  and  $m\angle 3 = 4x^\circ$ . Find  $x$ .

5. On the graph below, draw  $\overline{CD}$ , with  $C(-1, 6)$  and  $D(7, 3)$ , labeling the end points. Determine and state the coordinates of the midpoint  $M$  of  $\overline{CD}$  and mark and label it on the graph.

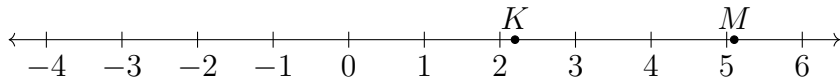


6. Given  $\overline{ABC}$ ,  $AC = 24$ , and the point  $B$  partitions  $\overline{AC}$  in a ratio of 1:3.

Find  $AB$ .



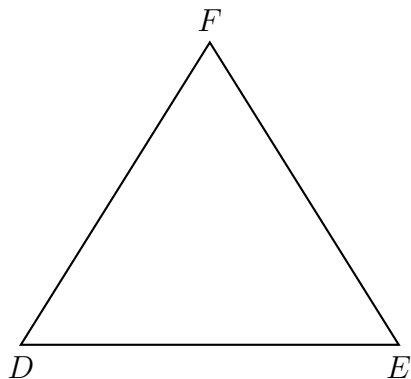
7. Given  $\overleftrightarrow{KM}$  as shown on the number line, with  $K$  having the coordinate 2.2 and  $M$  the coordinate 5.1



- (a) Find the value of the coordinate of the point  $L$ , the midpoint of  $\overline{KM}$ .

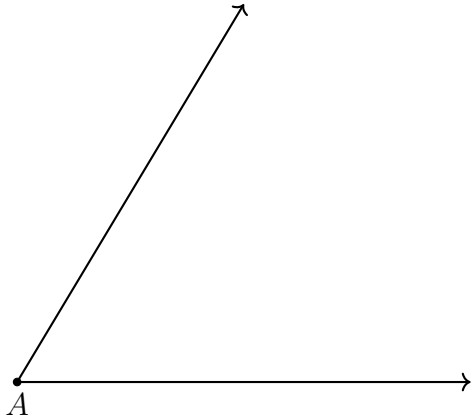
- (b) The point  $J$  is collinear with  $\overleftrightarrow{KM}$  such that  $K$  is the midpoint of  $\overleftrightarrow{JM}$ . Mark  $J$  on the line and state the value of its coordinate.

8. Given  $\triangle DEF$ .  $\overline{DF} \cong \overline{EF}$ ,  $m\angle F = 68$ . Find  $m\angle D$ .

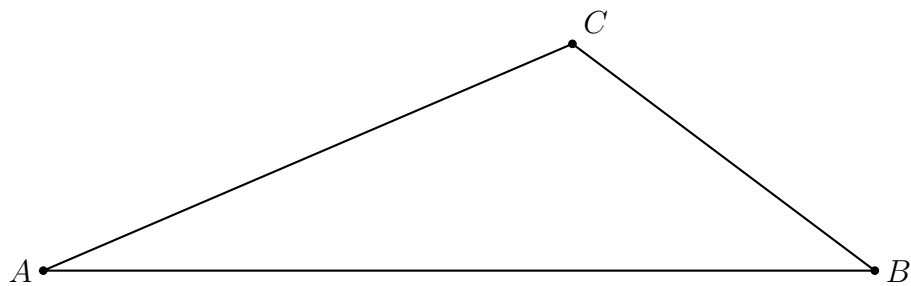


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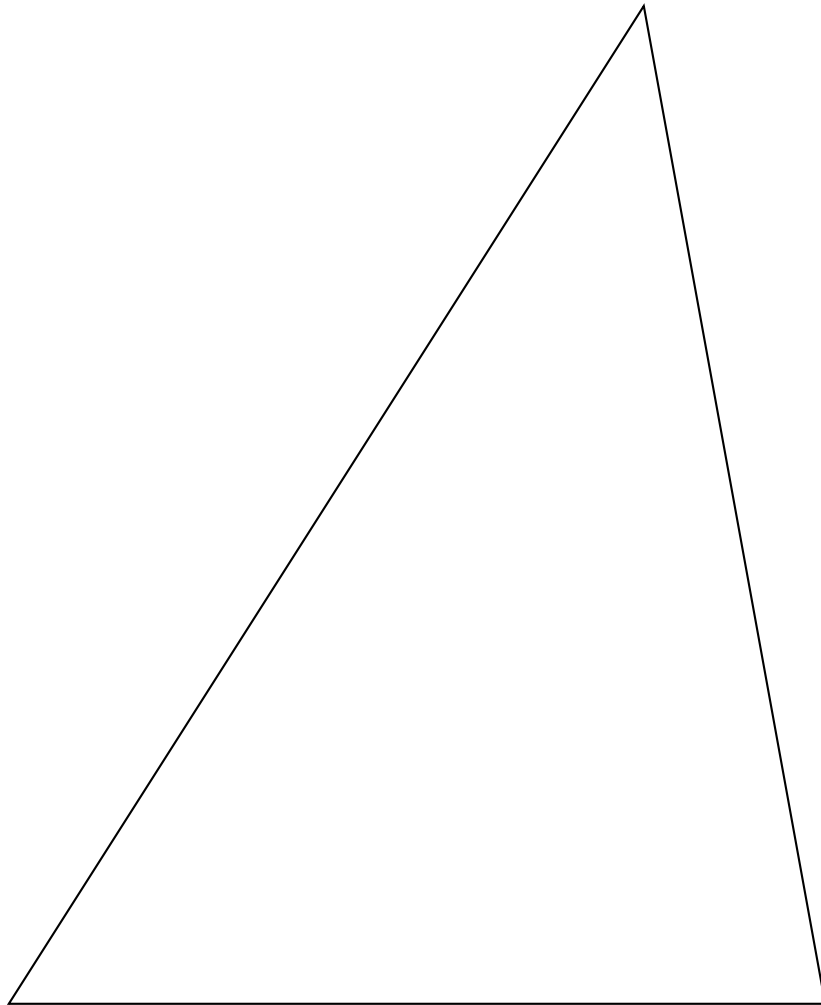
9. Construct a duplicate of the given angle  $A$ . [Leave all construction marks.]



10. Construct a perpendicular to  $\overline{AB}$  through  $C$ .

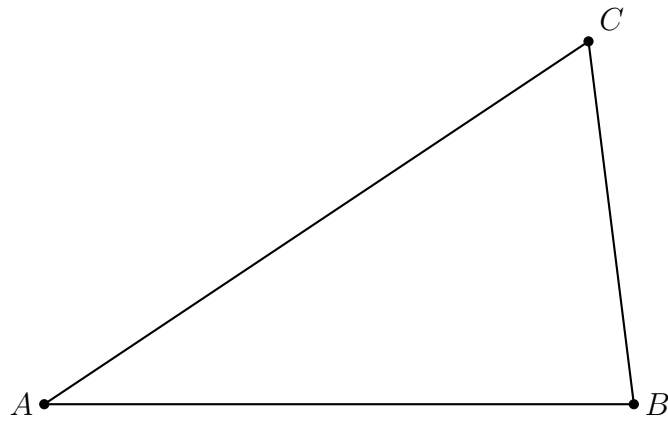


11. Construct the angle bisectors of the angles of the triangle and their intersection, the incenter.



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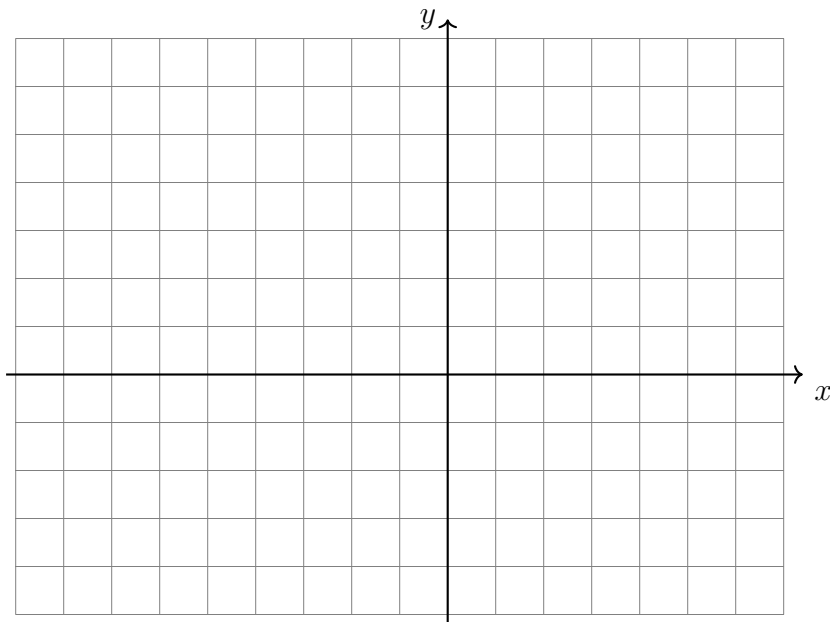
12. Construct the centroid of  $\triangle ABC$ , leaving all construction marks.



13. Given  $M(-7, 10)$  and  $N(-2, -2)$ , find the length of  $\overline{MN}$ .

14. Given  $\triangle GEM$  with  $G(-9, -3)$ ,  $E(6, -3)$ , and  $M(6, 5)$ .

- (a) Plot and label  $\triangle GEM$  on the graph, labeling its vertices.
- (b) Find the lengths of each side of the triangle. Show the substitution into the proper formulas for full credit.





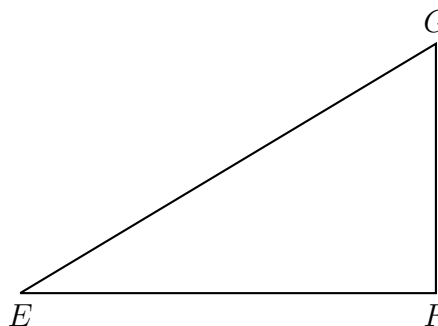
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15. Given right  $\triangle EFG$  with  $m\angle F = 90^\circ$ ,  $EG = 8$ , and  $m\angle E = 43^\circ$ . Round each value to three decimal places.

(a)  $\sin E =$

(b)  $\tan E =$

(c) Find  $EF$ .



16. Find the slope of each line.

(a)  $y = -3x - 7$

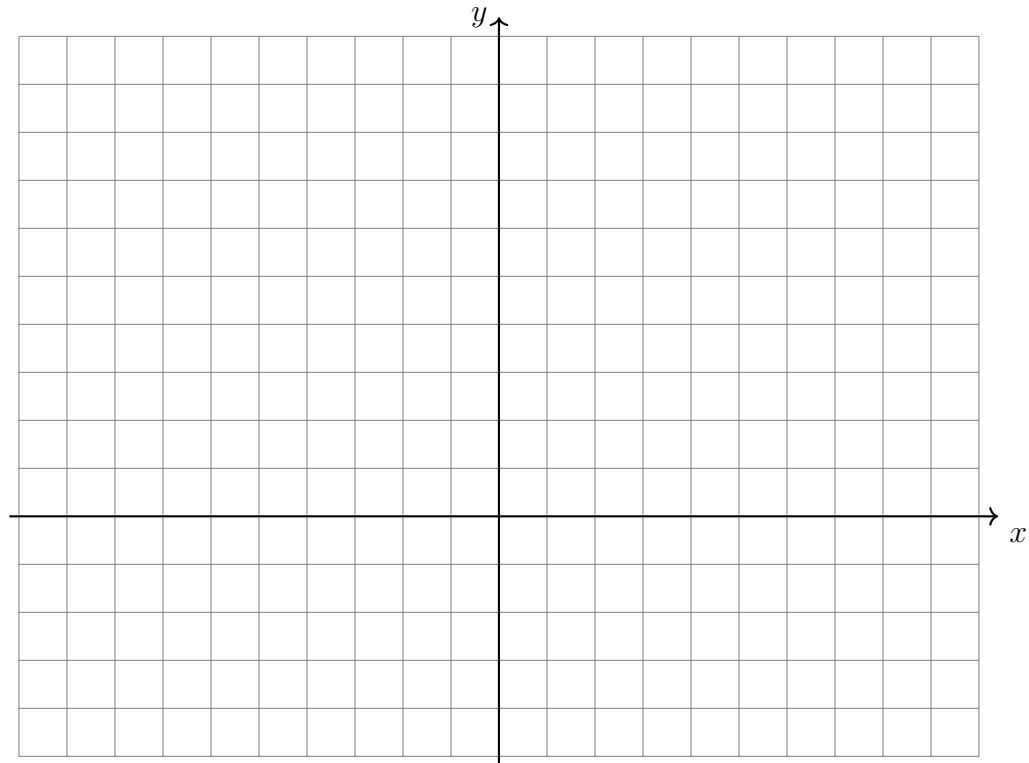
(b)  $2x - 3y = 9$

17. Find the slope of the line through the points  $A(5, 3)$  and  $B(7, -1)$ .

18. Given the quadrilateral  $RSTU$  with  $R(-8, -1)$ ,  $S(2, -1)$ ,  $T(10, 5)$ , and  $U(0, 5)$ .

- (a) Plot and label  $RSTU$  on the grid.
- (b) Find the slope of the diagonals  $\overline{RT}$  and  $\overline{SU}$ .
- (c) Theorem: A quadrilateral is a rhombus if and only if its diagonals are perpendicular.

Prove that  $RSTU$  is a rhombus.



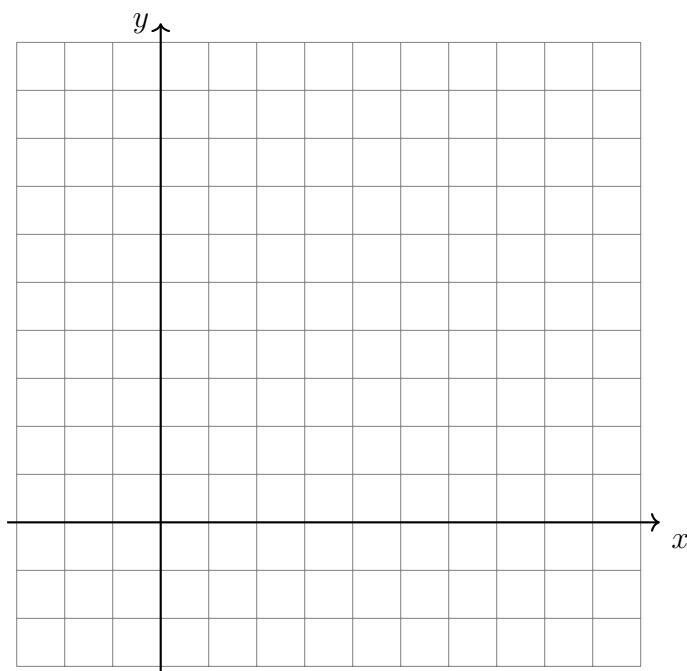
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19. Given the square  $EASY$  with  $E(-1, 1)$ ,  $A(6, 1)$ ,  $S(6, 8)$ , and  $Y(-1, 8)$ .

(a) Draw  $EASY$  on the graph, labeling the vertices.

(b) Find the area of  $EASY$ .

(c) Find the perimeter of  $EASY$ .



20. Given a circle  $O$  with radius 2.2.

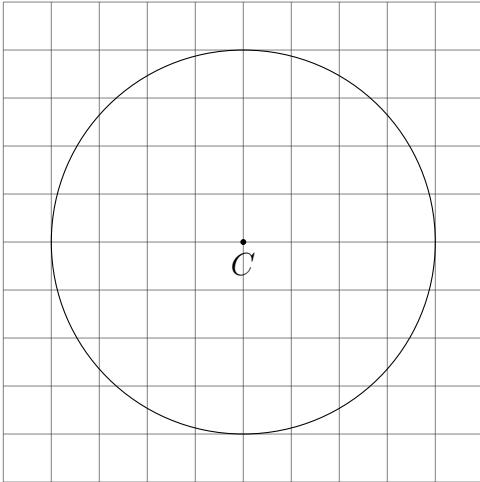
(a) Find the circumference of  $O$ .

(b) Find the area of  $O$ .

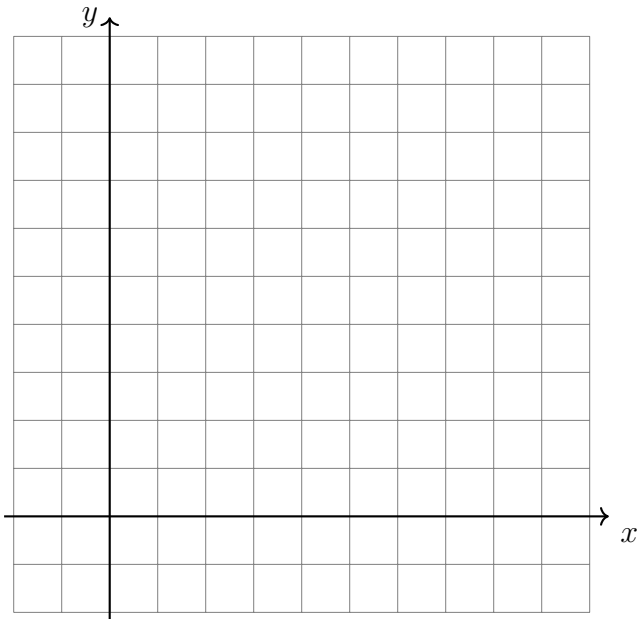
21. Given the circle  $C$  with circumference  $8\pi$ .

(a) Write down the formula for the circumference of a circle and solve for the radius yielding a circumference of  $8\pi$ .

(b) Find the area of the circle.



22. On the graph, draw polygon ABCDEF with vertices A(-1, 1), B(4, 1), C(4, 5), D(9, 5), E(9, 8), and F(-1, 8). Find the perimeter and the area of the polygon.



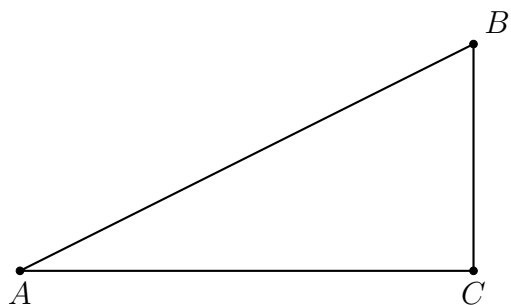
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23. Solve each equation for  $x$ , *rounded to the nearest thousandth*.

(a)  $\tan 32^\circ = \frac{x}{14.2}$

(b)  $\cos 32^\circ = \frac{14.2}{x}$

24. Given right  $\triangle ABC$  with  $m\angle C = 90^\circ$ ,  $m\angle A = 32^\circ$ , and  $AC = 14.2$ .



(a) Find  $AB$ .

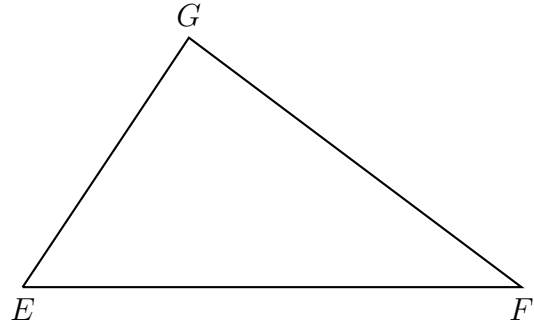
(b) Find  $BC$ .

25. Given right  $\triangle EFG$  with  $m\angle G = 90^\circ$ ,  $EG = 3.3$ ,  $FG = 5$ , and  $EF = 6$ . Express each trig ratio as a fraction.

(a)  $\sin F =$

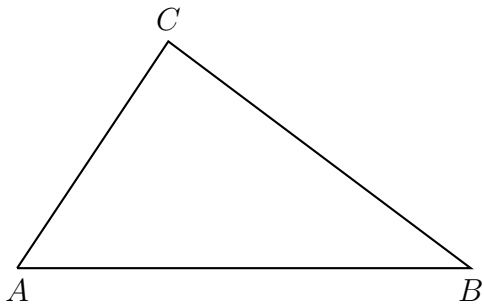
(b)  $\cos E =$

(c)  $\tan F =$



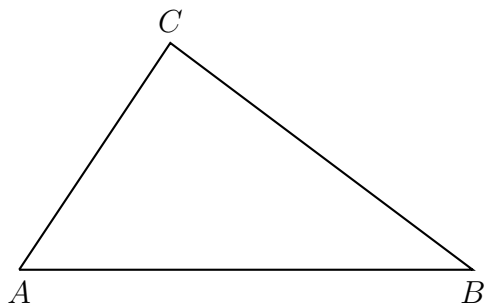
- (d) Spicy: Using guess and check, about how many degrees is  $\angle F$ ?

26. Construct a triangle congruent to  $\triangle ABC$  using the *SAS* theorem.



27. Construct a triangle congruent to  $\triangle ABC$  using the *SSS* postulate.

Name:

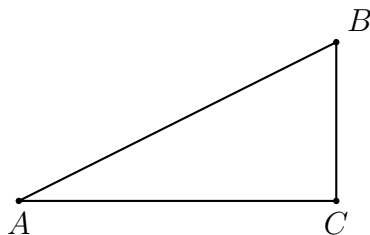


28. Express the result to the nearest thousandth.

(a)  $\cos 60^\circ =$

(b)  $\cos 27^\circ =$

29. Given right  $\triangle ABC$  with  $m\angle C = 90^\circ$ .

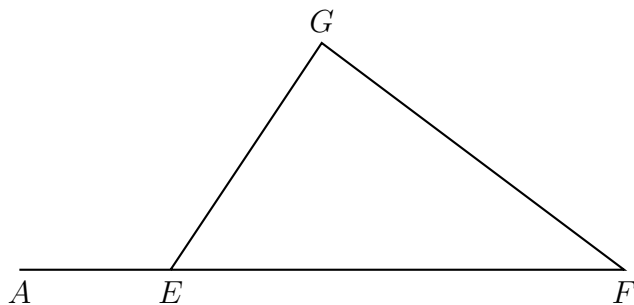


(a) Given  $BC = 4.5$ ,  $AB = 10$ . Express  $\sin A$  as a ratio.

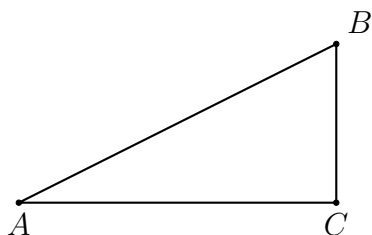
(b) Given  $m\angle A = 27^\circ$ . Find  $m\angle B$

(c) Find  $AC$

30. Given  $\triangle EFG$  with  $\overline{EF}$  extended to  $A$ . If  $m\angle F = 40^\circ$  and  $m\angle AEG = 140^\circ$ , what is  $m\angle EGF$ ?



31. Given right  $\triangle ABC$  with  $AC = 6$ ,  $BC = 3$ ,  $AB = 6.71$ ,  $m\angle C = 90^\circ$ . Express each trig ratio as a fraction, then as a decimal to the nearest thousandth.



(a)  $\sin A =$

(c)  $\sin B =$

(b)  $\cos A =$

(d)  $\tan B =$

32. Express the result to the nearest thousandth.

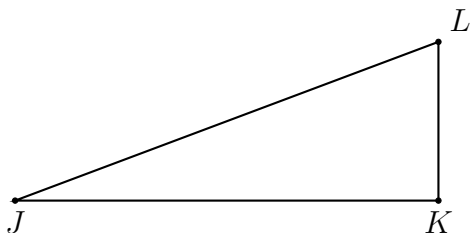
(a)  $\cos 60^\circ =$

(c)  $\cos 23^\circ =$

(b)  $\sin 67^\circ =$

(d)  $\tan 45^\circ =$

33. Given right  $\triangle JKL$  with  $\overline{JK} \perp \overline{KL}$ ,  $JL = 7$ ,  $m\angle J = 20^\circ$ .





Name:

(a) Find the length  $JK$

(b) Find the length  $KL$

34. Spicy: Given a rectangle with area 35, width  $x$ , and length  $x + 2$ .

(a) Find  $x$ .

(b) Find the perimeter of the rectangle.