

## Geometry Quick Quiz 01102025

Name.....

Question 1.

The lengths of two sides of a triangle are 7 and 11. Which inequality represents all possible values for  $x$ , the length of the third side of the triangle?

- (1)  $4 \leq x \leq 18$                       (3)  $4 \leq x < 18$   
(2)  $4 < x \leq 18$                       (4)  $4 < x < 18$

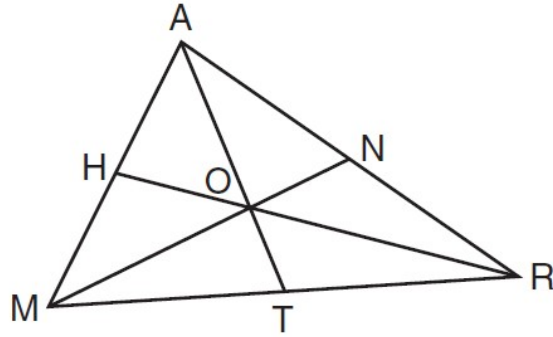
Question 2.

Which statement is the inverse of “If  $x + 3 = 7$ , then  $x = 4$ ”?

- (1) If  $x = 4$ , then  $x + 3 = 7$ .  
(2) If  $x \neq 4$ , then  $x + 3 \neq 7$ .  
(3) If  $x + 3 \neq 7$ , then  $x \neq 4$ .  
(4) If  $x + 3 = 7$ , then  $x \neq 4$ .

Question 3.

In the diagram below of  $\triangle MAR$ , medians  $\overline{MN}$ ,  $\overline{AT}$ , and  $\overline{RH}$  intersect at  $O$ .



If  $TO = 10$ , what is the length of  $\overline{TA}$ ?

- (1) 30
- (2) 25
- (3) 20
- (4) 15

Question 4.

What is an equation of the line that passes through the point  $(4,5)$  and is parallel to the line whose equation is  $y = \frac{2}{3}x - 4$ ?

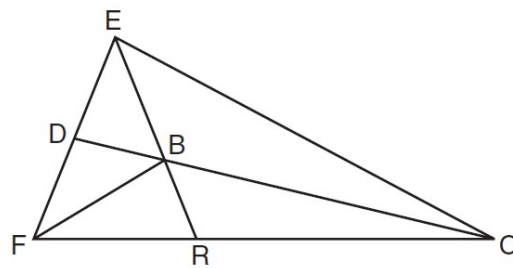
- (1)  $2y + 3x = 11$
- (2)  $2y + 3x = 22$
- (3)  $3y - 2x = 2$
- (4)  $3y - 2x = 7$

**Question 5.**

The measures of the angles of a triangle are in the ratio 5:6:7. Determine the measure, in degrees, of the *smallest* angle of the triangle.

**Question 6.**

In the diagram below, point  $B$  is the incenter of  $\triangle FEC$ , and  $\overline{EBR}$ ,  $\overline{CBD}$ , and  $\overline{FB}$  are drawn.

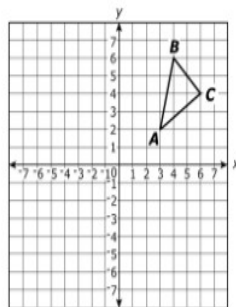


If  $m\angle FEC = 84$  and  $m\angle ECF = 28$ , determine and state  $m\angle BRC$ .

**The incenter of a triangle is the point where the three angle bisectors meet.**

**Question 7.**

Triangle  $ABC$  is graphed in the  $xy$ -coordinate plane, as shown.



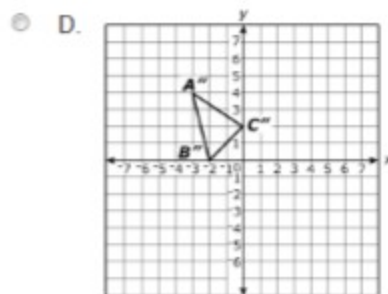
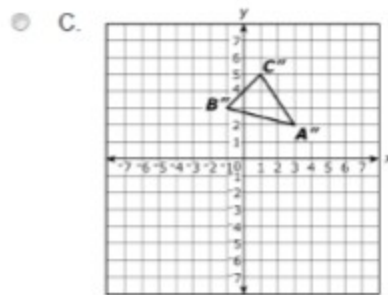
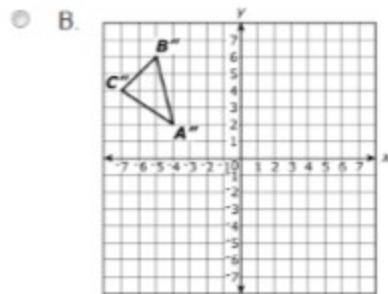
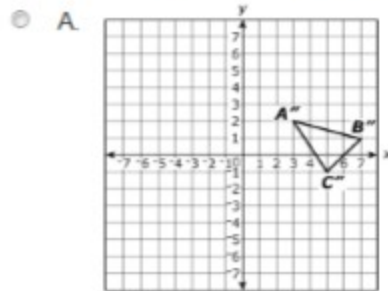
Triangle  $ABC$  is reflected across the  $x$ -axis to form triangle  $A'B'C'$ . What are the coordinates of  $C'$  after the reflection?

- A.  $(-6, 4)$
- B.  $(3, -2)$
- C.  $(4, -6)$
- D.  $(6, -4)$

**Question 8.**

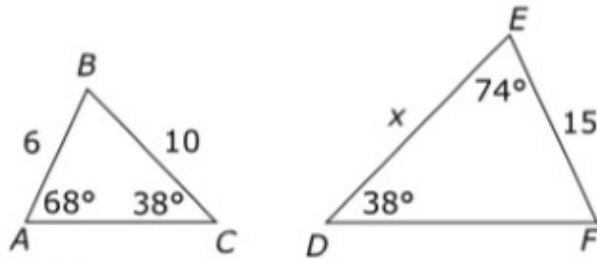
The triangle  $ABC$  referred to below is the triangle  $ABC$  in Question 7

Triangle  $ABC$  in the  $xy$ -coordinate plane will be rotated  $90^\circ$  counterclockwise about point  $A$  to form triangle  $A''B''C''$ . Which graph represents  $A''B''C''$ ?



**Question 9.**

Given the two triangles shown, find the value of  $x$ .



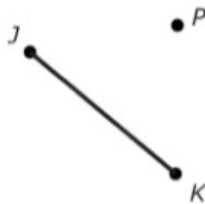
Select from the drop-down menu to correctly complete the sentence.

The value of  $x$  is  .

4
11
12
19
20
25

**Question 10.**

The figure shows line segment  $JK$  and a point  $P$  that is not collinear with points  $J$  and  $K$ .

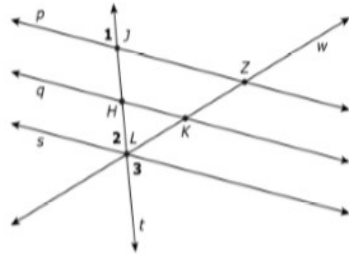


Suppose that line segment  $J'K'$  is the image of line segment  $JK$  after a dilation with scale factor 0.5 that is centered at point  $P$ . Which statement **best** describes the position of line segment  $J'K'$ ?

- A. Line segment  $J'K'$  is parallel to line segment  $JK$ .
- B. Line segment  $J'K'$  is perpendicular to line segment  $JK$ .
- C. Line segment  $J'K'$  intersects line segment  $JK$  at one point, but it is not perpendicular to line segment  $JK$ .
- D. Line segment  $J'K'$  lies on the same line as line segment  $JK$ .

**11.  
Bonus.**

In the figure,  $p \parallel s$ . Transversals  $t$  and  $w$  intersect at point  $L$ .



**Part A**

Statement	Reason
1) $p \parallel s$	Given
2) $\angle 1 \cong \angle 2$	Corresponding angles along parallel lines are congruent.
3) $\angle 2 \cong \angle 3$	?
4) $\angle 1 \cong \angle 3$	Congruence of angles is transitive.

What is the missing reason in step 3?

- A. Alternate interior angles along parallel lines are congruent.
- B. Alternate exterior angles along parallel lines are congruent.
- C. Corresponding angles along parallel lines are congruent.
- D. Vertical angles are congruent.

**Part B**

Consider the proof of  $p \parallel q$  given that  $\triangle LHK \sim \triangle LJZ$ .

If  $\triangle LHK \sim \triangle LJZ$ , then  $\angle LHK \cong \angle LJZ$  because corresponding angles in similar triangles are congruent.

Which statement concludes the proof?

- A. If  $\angle LHK \cong \angle LJZ$ , then  $p \parallel q$  because when base angles are congruent, the lines are parallel.
- B. If  $\angle LHK \cong \angle LJZ$ , then  $p \parallel q$  because when corresponding angles are congruent, the lines are parallel.
- C. If  $\angle LHK \cong \angle LKH$ , then  $p \parallel q$  because when alternate exterior angles are congruent, the lines are parallel.
- D. If  $\angle JLZ \cong \angle HLK$ , then  $p \parallel q$  because when corresponding angles are congruent, the lines are parallel.



## High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters	1 kilometer = 0.62 mile	1 cup = 8 fluid ounces
1 meter = 39.37 inches	1 pound = 16 ounces	1 pint = 2 cups
1 mile = 5280 feet	1 pound = 0.454 kilograms	1 quart = 2 pints
1 mile = 1760 yards	1 kilogram = 2.2 pounds	1 gallon = 4 quarts
1 mile = 1.609 kilometers	1 ton = 2000 pounds	1 gallon = 3.785 liters
		1 liter = 0.264 gallons
		1 liter = 1000 cubic centimeters

Triangle	$A = \frac{1}{2}bh$
Parallelogram	$A = bh$
Circle	$A = \pi r^2$
Circle	$C = \pi d$ or $C = 2\pi r$
General Prisms	$V = Bh$
Cylinder	$V = \pi r^2 h$
Sphere	$V = \frac{4}{3}\pi r^3$
Cone	$V = \frac{1}{3}\pi r^2 h$
Pyramid	$V = \frac{1}{3}Bh$

Quadratic Formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$
Arithmetic Sequence	$a_n = a_1 + (n - 1)d$
Geometric Sequence	$a_n = a_1 r^{n-1}$
Geometric Series	$S_n = \frac{a_1 - a_1 r^n}{1 - r}$ where $r \neq 1$
Radians	1 radian = $\frac{180}{\pi}$ degrees
Degrees	1 degree = $\frac{\pi}{180}$ radians



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