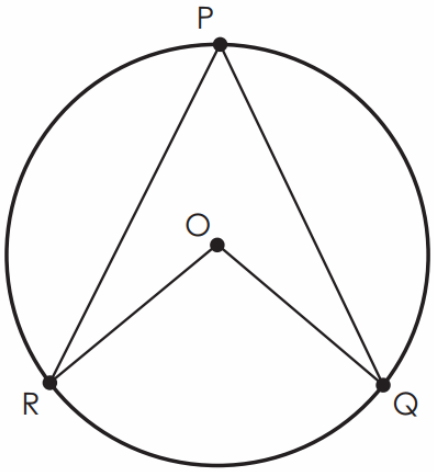
Geometry Daily Quiz 02052020

Question 1.

A teacher draws circle O, ∠RPQ and ∠ROQ, as shown.



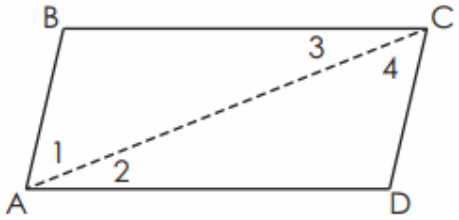
The teacher asks students to select the correct claim about the relationship between m∠RPQ and m∠ROQ.

- Claim 1: The measure of ∠RPQ is equal to the measure of ∠ROQ.
- Claim 2: The measure of ∠ROQ is twice the measure of ∠RPQ.

Which claim is correct? Justify your answer.

Question 2

The proof shows that opposite angles of a parallelogram are congruent.



Given: ABCD is a parallelogram with diagonal $\overline{AC}$.

Prove: $\angle BAD \cong \angle DCB$

Proof:

Statements	Reasons
ABCD is a parallelogram with diagonal $\overline{AC}$.	Given
$\overline{AB} \parallel \overline{CD}$ and $\overline{AD} \parallel \overline{BC}$	Definition of parallelogram
$\angle 2 \cong \angle 3$ $\angle 1 \cong \angle 4$	Alternate interior angles are congruent.
$m\angle 2 = m\angle 3$ and $m\angle 1 = m\angle 4$	Measures of congruent angles are equal.
$m\angle 1 + m\angle 2 = m\angle 4 + m\angle 2$	Addition property of equality
$m\angle 1 + m\angle 2 = m\angle 4 + m\angle 3$	?
$m\angle 1 + m\angle 2 = m\angle BAD$ $m\angle 3 + m\angle 4 = m\angle DCB$	Angle addition postulate
$m\angle BAD = m\angle DCB$	Substitution
$\angle BAD \cong \angle DCB$	Angles are congruent when their measures are equal.

What is the missing reason in this partial proof?

A. ASA

B. Substitution

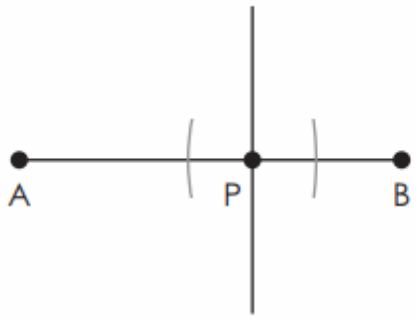
C. Angle addition postulate

D. Alternate interior angles are congruent.

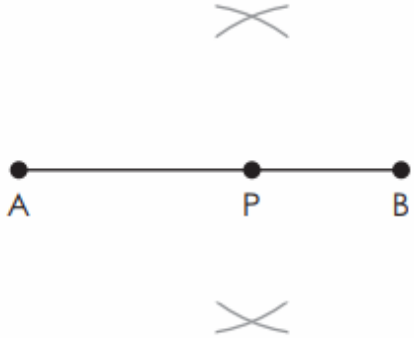
Question 3.

Which diagram shows only the first step of constructing the line perpendicular to $\overline{AB}$ through point P?

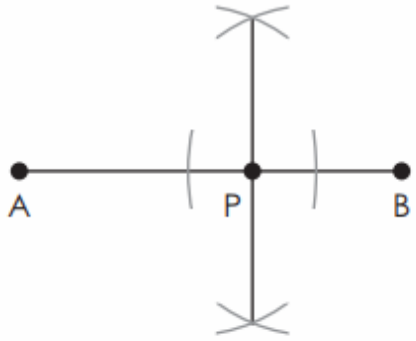
A.



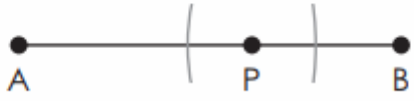
B.



C.

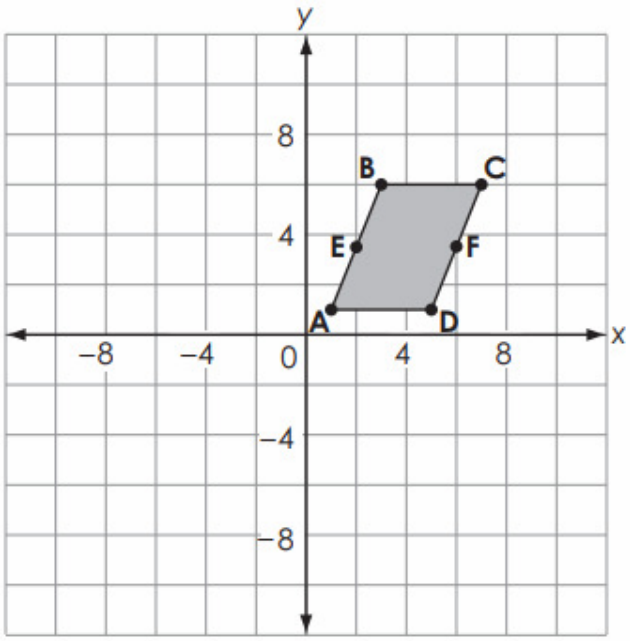


D.



Question 4.

Parallelogram ABCD is shown. Point E is the midpoint of segment AB. Point F is the midpoint of segment CD.



Which transformation carries the parallelogram onto itself?

A. a reflection across line segment AC

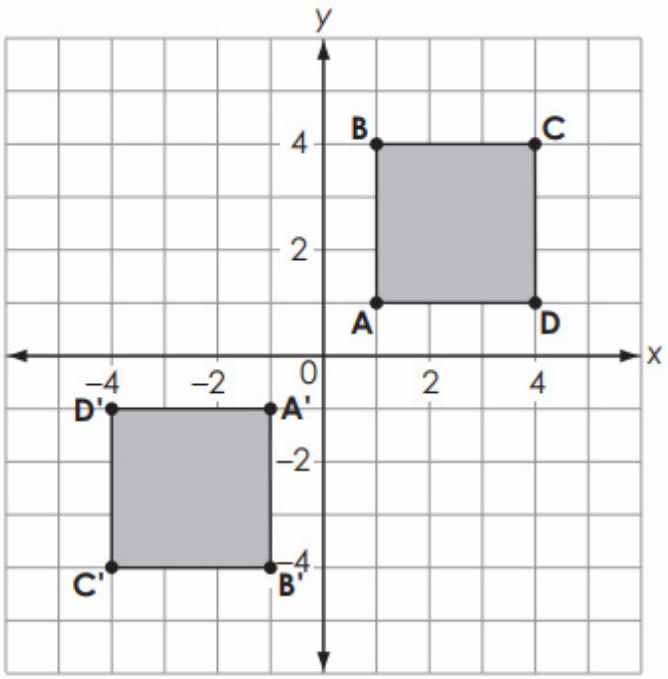
B. a reflection across line segment EF

C. a rotation of 180 degrees clockwise about the origin

D. a rotation of 180 degrees clockwise about the center of the parallelogram

Question 5.

Square ABCD is transformed to create the image A'B'C'D', as shown.



In the **Answer Document**, select all of the transformations that could have been performed.

A. a reflection across the line $y = x$

B. a reflection across the line $y = -2x$

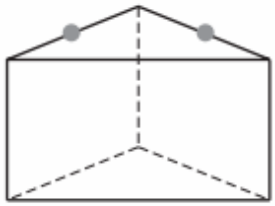
C. a rotation of 180 degrees clockwise about the origin

D. a reflection across the x-axis, and then a reflection across the y-axis

E. a rotation of 270 degrees counterclockwise about the origin, and then a reflection across the x-axis

Question 6.

A cross section of a right triangular prism is created by a plane cut through the points shown and is also perpendicular to the opposite base.



What is the most specific name of the shape representing the cross section?

A. triangle
B. rectangle
C. trapezoid
D. parallelogram

Question 7.

Line segment AC has endpoints A(–1, –3.5) and C(5, –1).

Point B is on line segment AC and is located at (0.2, –3).

What is the ratio of $\frac{AB}{BC}$?

Question 8.

Kyle performs a transformation on a triangle. The resulting triangle is similar but not congruent to the original triangle.

Which transformation did Kyle perform on the triangle?

A. dilation

B. reflection

C. rotation

D. translation

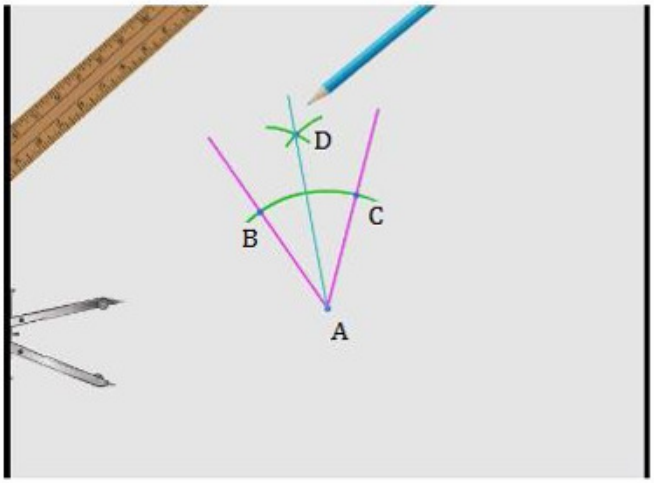
Question 9.

Triangle ABC has vertices A(1, 1), B(2.5, 3), and C(0, –3). It is dilated by a scale factor of $\frac{1}{2}$ about the origin to create triangle A'B'C'.

What is the length, in units, of side $\overline{B'C'}$?

Question 10.

18. Use the information provided in the animation to answer the questions about the geometric construction. (*note: an online video plays demonstrating the construction.*)



Part A

The first step of the construction is to draw an arc centered at point A that intersects both sides of the given angle. What is established by the first step?

A. $\overline{AB} \cong \overline{BC}$

B. $\overline{AB} \cong \overline{AC}$

C. $\overline{AD} \cong \overline{AC}$

D. $\overline{BD} \cong \overline{CD}$

Part B

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

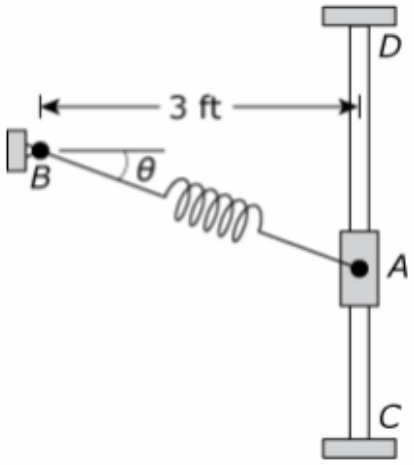
The construction creates congruent triangles. Triangle ABD and ΔACD are congruent

because of the [Choose... / side, side, side / angle, side, angle / side, angle, side] **theorem. It follows that $\overrightarrow{AD}$ must be the angle**

bisector of $\angle BAC$ because [Choose... / $\angle ACD \cong \angle ABD$ / $\angle BAC \cong \angle BDC$ / $\angle BAD \cong \angle CAD$ / $\angle BAD \cong \angle ABD$]

Bonus

20. A spring is attached at one end to support B and at the other end to collar A, as represented in the figure. Collar A slides along the vertical bar between points C and D. In the figure, the angle θ is the angle created as the collar moves between points C and D.



Part A

When $\theta = 28°$, what is the distance from point A to point B to the nearest tenth of a foot?

Enter your answer in the box.

[ ] feet

Part B

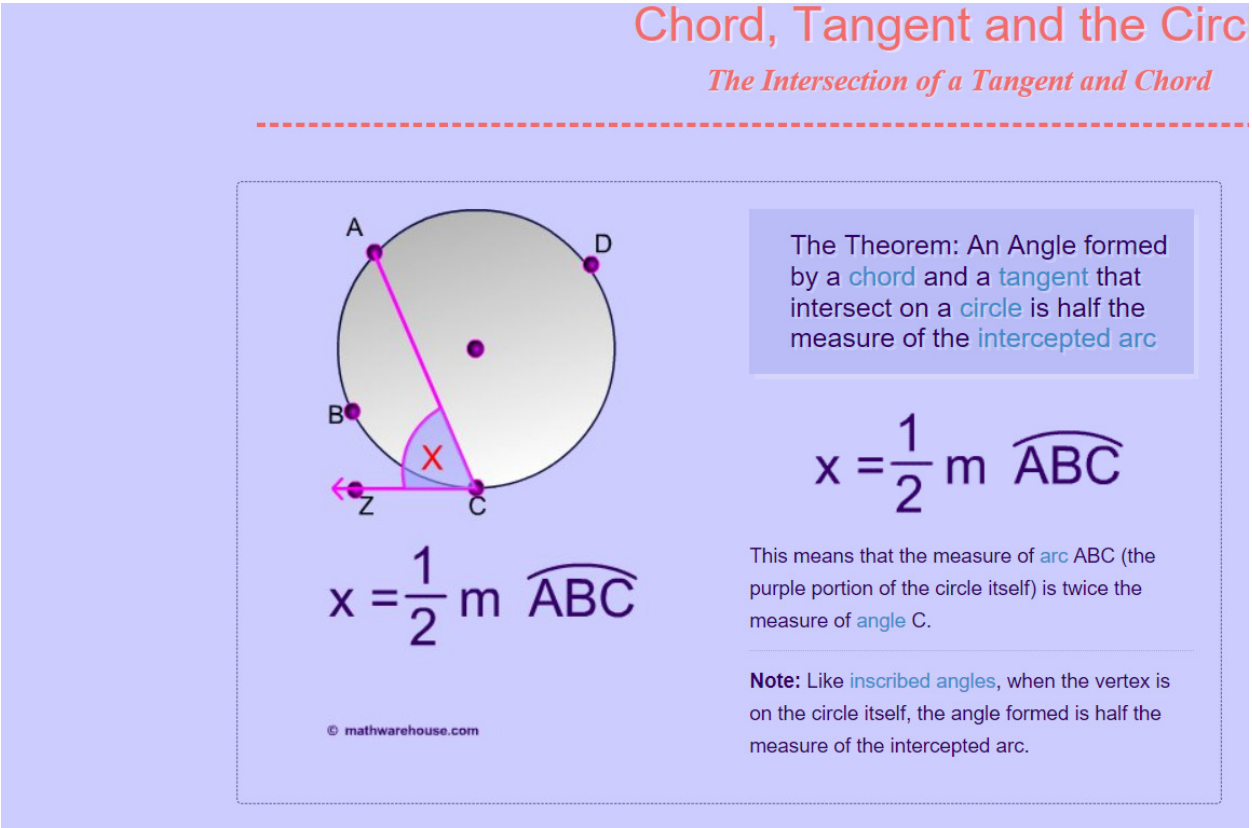
When the spring is stretched and the distance from point A to point B is 5.2 feet, what is the value of θ to the nearest tenth of a degree?

A. 35.2°

B. 45.1°

C. 54.8°

D. 60.0°



http://www.mathwarehouse.com/geometry/circle/angle-tangent-and-chord.php

Converse, Inverse, Contrapositive

Given an if-then statement "if p, then q," we can create three related statements:

A conditional statement consists of two parts, a hypothesis in the "if" clause and a conclusion in the "then" clause. For instance, "If it rains, then they cancel school."

"It rains" is the hypothesis.

"They cancel school" is the conclusion.

To form the converse of the conditional statement, interchange the hypothesis and the conclusion.

The converse of *"If it rains, then they cancel school"* is *"If they cancel school, then it rains."*

To form the inverse of the conditional statement, take the negation of both the hypothesis and the conclusion.

The inverse of *"If it rains, then they cancel school"* is *"If it does not rain, then they do not cancel school."*

To form the contrapositive of the conditional statement, interchange the hypothesis and the conclusion of the inverse statement.

The contrapositive of *"If it rains, then they cancel school"* is *"If they do not cancel school, then it does not rain."*

The link to the above information.
https://www.varsitytutors.com/hotmath/hotmath_help/topics/converse-inverse-contrapositive

PARCC
Partnership for Assessment of Readiness for College and Careers

High School Mathematics Assessment Reference Sheet

1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 5280 feet
1 mile = 1760 yards
1 mile = 1.609 kilometers

1 kilometer = 0.62 mile
1 pound = 16 ounces
1 pound = 0.454 kilograms
1 kilogram = 2.2 pounds
1 ton = 2000 pounds

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts
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