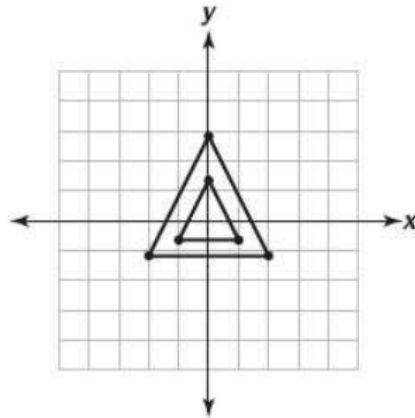


The smaller triangle is transformed to create the larger triangle. Which of these is the scale factor of the dilation centered at the point $(0, 0)$?

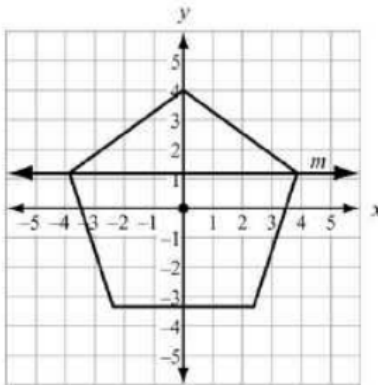


- A. 4
- B. 2
- C. 1
- D. $\frac{1}{2}$



SAMPLE ITEMS

1. A regular pentagon is centered about the origin and has a vertex at $(0, 4)$.

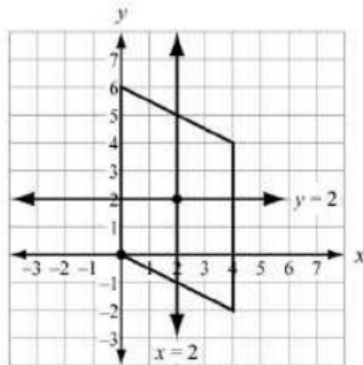


Which transformation maps the pentagon to itself?

- A. a reflection across line m
- B. a reflection across the x -axis
- C. a clockwise rotation of 100° about the origin
- D. a clockwise rotation of 144° about the origin



2. A parallelogram has vertices at $(0, 0)$, $(0, 6)$, $(4, 4)$, and $(4, -2)$.

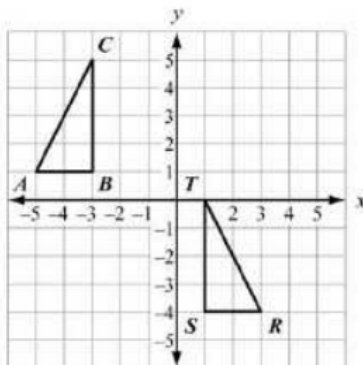


Which transformation maps the parallelogram to itself?

- A. a reflection across the line $x = 2$
- B. a reflection across the line $y = 2$
- C. a rotation of 180° about the point $(2, 2)$
- D. a rotation of 180° about the point $(0, 0)$



3. Which sequence of transformations maps $\triangle ABC$ to $\triangle RST$?

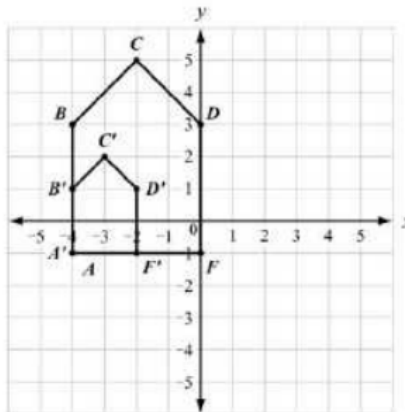


- A. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 1 unit down.
- B. Reflect $\triangle ABC$ across the line $x = -1$. Then translate the result 5 units down.
- C. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° clockwise about the point $(1, 1)$.
- D. Translate $\triangle ABC$ 6 units to the right. Then rotate the result 90° counterclockwise about the point $(1, 1)$.



SAMPLE ITEMS

1. Figure $A'B'C'D'F'$ is a dilation of figure $ABCDF$ by a scale factor of $\frac{1}{2}$. The dilation is centered at $(-4, -1)$.



Which statement is true?

- A. $\frac{AB}{A'B'} = \frac{B'C'}{BC}$
- B. $\frac{AB}{A'B'} = \frac{BC}{B'C'}$
- C. $\frac{AB}{A'B'} = \frac{BC}{D'F'}$
- D. $\frac{AB}{A'B'} = \frac{D'F'}{BC}$

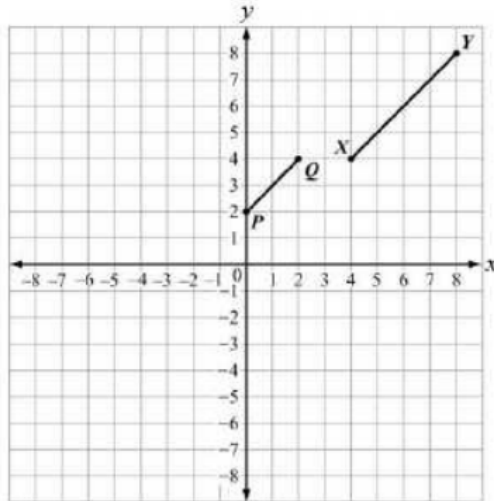


2. Which transformation results in a figure that is similar to the original figure but has a greater area?

- A. a dilation of $\triangle QRS$ by a scale factor of 0.25
- B. a dilation of $\triangle QRS$ by a scale factor of 0.5
- C. a dilation of $\triangle QRS$ by a scale factor of 1
- D. a dilation of $\triangle QRS$ by a scale factor of 2



3. In the coordinate plane, segment \overline{PQ} is the result of a dilation of segment \overline{XY} by a scale factor of $\frac{1}{2}$.



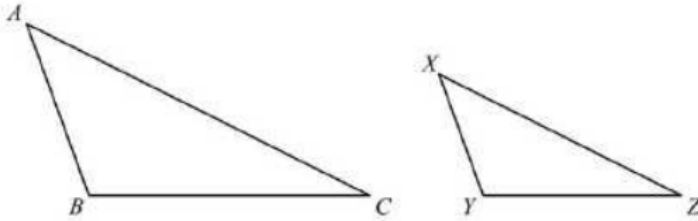
Which point is the center of dilation?

- A. $(-4, 0)$
- B. $(0, -4)$
- C. $(0, 4)$
- D. $(4, 0)$



SAMPLE ITEMS

1. In the triangles shown, $\triangle ABC$ is dilated by a factor of $\frac{2}{3}$ to form $\triangle XYZ$.

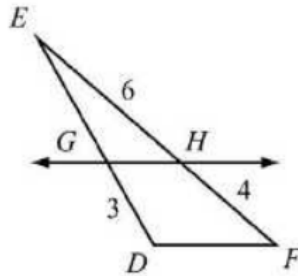


Given that $m\angle A = 50^\circ$ and $m\angle B = 100^\circ$, what is $m\angle Z$?

- A. 15°
- B. 25°
- C. 30°
- D. 50°



2. In the triangle shown, $\overline{GH} \parallel \overline{DF}$.

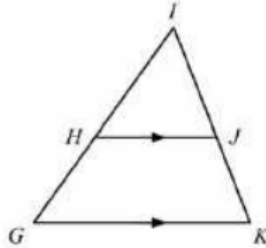


What is the length of \overline{GE} ?

- A. 2.0
- B. 4.5
- C. 7.5
- D. 8.0



3. Use this triangle to answer the question.



This is a proof of the statement “If a line is parallel to one side of a triangle and intersects the other two sides at distinct points, then it separates these sides into segments of proportional lengths.”

Step	Statement	Justification
1	\overline{GK} is parallel to \overline{HJ} .	Given
2	$\angle HGK \cong \angle IHJ$ $\angle IKG \cong \angle IJH$?
3	$\triangle GIK \sim \triangle HIJ$	AA Similarity
4	$\frac{IG}{IH} = \frac{IK}{IJ}$	Corresponding sides of similar triangles are proportional.
5	$\frac{HG + IH}{IH} = \frac{JK + IJ}{IJ}$	Segment Addition Postulate
6	$\frac{HG}{IH} = \frac{JK}{IJ}$	Subtraction Property of Equality

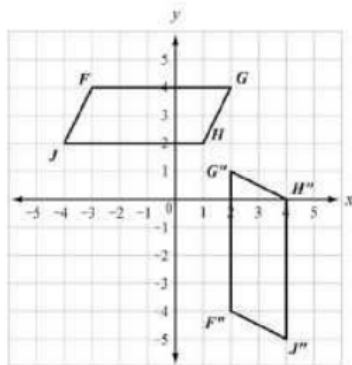
Which reason justifies Step 2?

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



SAMPLE ITEMS

1. Parallelogram $FGHJ$ was translated 3 units down to form parallelogram $F'G'H'J'$. Parallelogram $F'G'H'J'$ was then rotated 90° counterclockwise about point G' to obtain parallelogram $F''G''H''J''$.

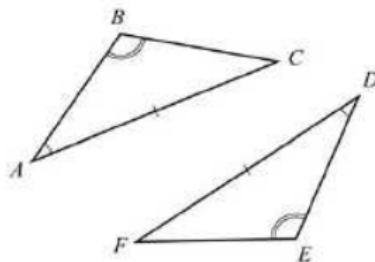


Which statement is true about parallelogram $FGHJ$ and parallelogram $F''G''H''J''$?

- A. The figures are both similar and congruent.
 B. The figures are neither similar nor congruent.
 C. The figures are similar but not congruent.
 D. The figures are congruent but not similar.



2. Consider the triangles shown.

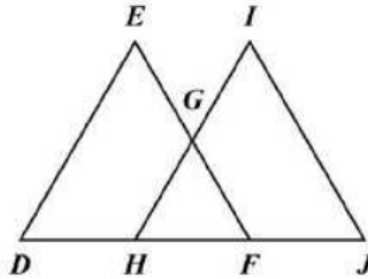


Which can be used to prove the triangles are congruent?

- A. SSS
 B. ASA
 C. SAS
 D. AAS



3. In this diagram, $\overline{DE} \cong \overline{JI}$ and $\angle D \cong \angle J$.



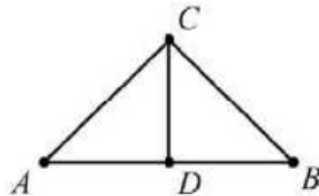
Which additional information is sufficient to prove that $\triangle DEF$ is congruent to $\triangle JIH$?

- A. $\overline{ED} \cong \overline{IH}$
- B. $\overline{DH} \cong \overline{JF}$
- C. $\overline{HG} \cong \overline{GI}$
- D. $\overline{HF} \cong \overline{JF}$



SAMPLE ITEMS

1. In this diagram, \overline{CD} is the perpendicular bisector of \overline{AB} . The two-column proof shows that \overline{AC} is congruent to \overline{BC} .



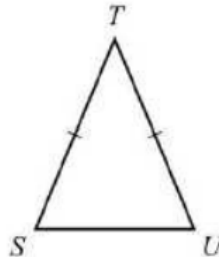
Step	Statement	Justification
1	\overline{CD} is the perpendicular bisector of \overline{AB} .	Given
2	$\overline{AD} \cong \overline{BD}$	Definition of bisector
3	$\overline{CD} \cong \overline{CD}$	Reflexive Property of Congruence
4	$\angle ADC$ and $\angle BDC$ are right angles.	Definition of perpendicular lines
5	$\angle ADC \cong \angle BDC$	All right angles are congruent.
6	$\triangle ADC \cong \triangle BDC$	_____ ? _____
7	$\overline{AC} \cong \overline{BC}$	CPCTC

Which of the following would justify Step 6?

- A. AAS
- B. ASA
- C. SAS
- D. SSS



2. In this diagram, $\triangle STU$ is an isosceles triangle where \overline{ST} is congruent to \overline{UT} . The paragraph proof shows that $\angle S$ is congruent to $\angle U$.



It is given that \overline{ST} is congruent to \overline{UT} . Draw \overline{TV} such that V is on \overline{SU} and \overline{TV} bisects $\angle T$. By the definition of an angle bisector, $\angle STV$ is congruent to $\angle UTV$. By the Reflexive Property of Congruence, \overline{TV} is congruent to \overline{TV} . Triangle STV is congruent to triangle UTV by SAS. $\angle S$ is congruent to $\angle U$ by _____ ?

Which step is missing in the proof?

- A. CPCTC
- B. Reflexive Property of Congruence
- C. Definition of right angles
- D. Angle Congruence Postulate



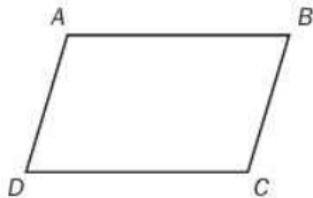
SAMPLE ITEMS

1. Which information is needed to show that a parallelogram is a rectangle?

- A. The diagonals bisect each other.
- B. The diagonals are congruent.
- C. The diagonals are congruent and perpendicular.
- D. The diagonals bisect each other and are perpendicular.



2. Look at quadrilateral $ABCD$.

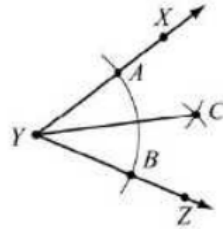


Which information is needed to show that quadrilateral $ABCD$ is a parallelogram?

- A. Use the distance formula to show that diagonals AC and BD have the same length.
- B. Use the slope formula to show that segments AB and CD are perpendicular and segments AD and BC are perpendicular.
- C. Use the slope formula to show that segments AB and CD have the same slope and segments AD and BC have the same slope.
- D. Use the distance formula to show that segments AB and AD have the same length and segments CD and BC have the same length.



3. Consider the construction of the angle bisector shown.



Which could have been the first step in creating this construction?

- A. Place the compass point on point A and draw an arc inside $\angle Y$.
- B. Place the compass point on point B and draw an arc inside $\angle Y$.
- C. Place the compass point on vertex Y and draw an arc that intersects \overline{YX} and \overline{YZ} .
- D. Place the compass point on vertex Y and draw an arc that intersects point C .

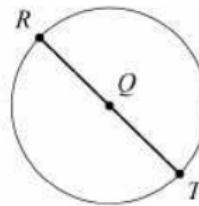


4. Consider the beginning of a construction of a square inscribed in circle Q .

Step 1: Label point R on circle Q .

Step 2: Draw a diameter through R and Q .

Step 3: Label the point where the diameter intersects the circle as point T .



What is the next step in this construction?

- A. Draw radius \overline{SQ} .
- B. Label point S on circle Q .
- C. Construct a line segment parallel to \overline{RT} .
- D. Construct the perpendicular bisector of \overline{RT} .



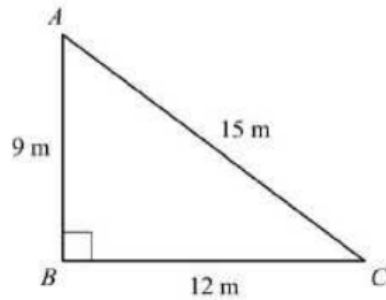
SAMPLE ITEMS

1. In right triangle ABC , angle A and angle B are complementary angles. The value of $\cos A$ is $\frac{5}{13}$. What is the value of $\sin B$?

- A. $\frac{5}{13}$
B. $\frac{12}{13}$
C. $\frac{13}{12}$
D. $\frac{13}{5}$



2. Triangle ABC is given below.



What is the value of $\cos A$?

- A. $\frac{3}{5}$
B. $\frac{3}{4}$
C. $\frac{4}{5}$
D. $\frac{5}{3}$

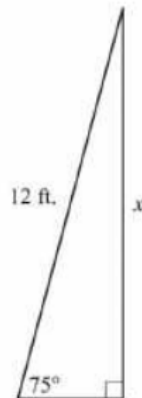


3. In right triangle HJK , $\angle J$ is a right angle and $\tan \angle H = 1$. Which statement about triangle HJK must be true?

- A. $\sin \angle H = \frac{1}{2}$
- B. $\sin \angle H = 1$
- C. $\sin \angle H = \cos \angle H$
- D. $\sin \angle H = \frac{1}{\cos \angle H}$



4. A 12-foot ladder is leaning against a building at a 75° angle with the ground.

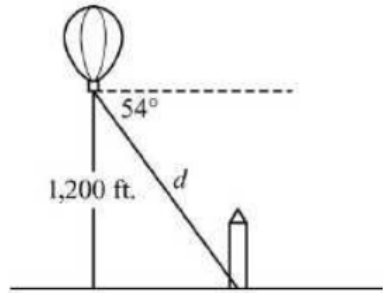


Which equation can be used to find how high the ladder reaches up the side of the building?

- A. $\sin 75^\circ = \frac{12}{x}$
- B. $\tan 75^\circ = \frac{12}{x}$
- C. $\cos 75^\circ = \frac{x}{12}$
- D. $\sin 75^\circ = \frac{x}{12}$



5. A hot air balloon is 1,200 feet above the ground. The angle of depression from the basket of the hot air balloon to the base of a monument is 54° .



Which equation can be used to find the distance, d , in feet, from the basket of the hot air balloon to the base of the monument?

- A. $\sin 54^\circ = \frac{d}{1200}$
- B. $\sin 54^\circ = \frac{1200}{d}$
- C. $\cos 54^\circ = \frac{d}{1200}$
- D. $\cos 54^\circ = \frac{1200}{d}$



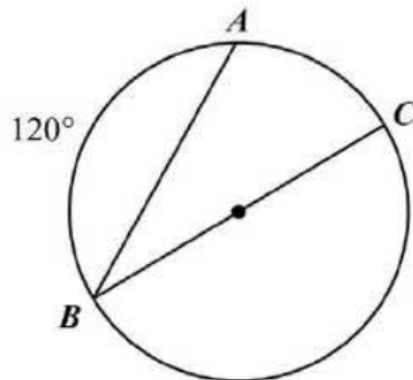
SAMPLE ITEMS

1. Circle P is dilated to form circle P' . Which statement is ALWAYS true?

- A. The radius of circle P is equal to the radius of circle P' .
- B. The length of any chord in circle P is greater than the length of any chord in circle P' .
- C. The diameter of circle P is greater than the diameter of circle P' .
- D. The ratio of the diameter to the circumference is the same for both circles.



2. In the circle shown, \overline{BC} is a diameter and $m\widehat{AB} = 120^\circ$.



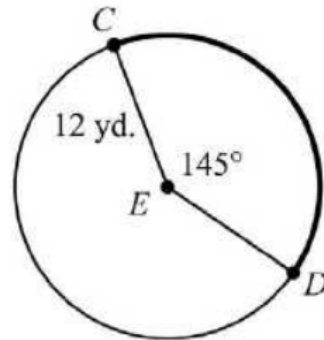
What is the measure of $\angle ABC$?

- A. 15°
- B. 30°
- C. 60°
- D. 120°



SAMPLE ITEMS

1. Circle E is shown.

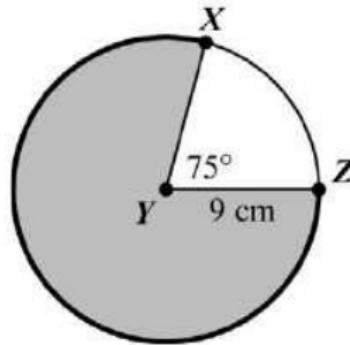


What is the length of \widehat{CD} ?

- A. $\frac{29}{72}\pi$ yd.
B. $\frac{29}{6}\pi$ yd.
C. $\frac{29}{3}\pi$ yd.
D. $\frac{29}{2}\pi$ yd.



2. Circle Y is shown.

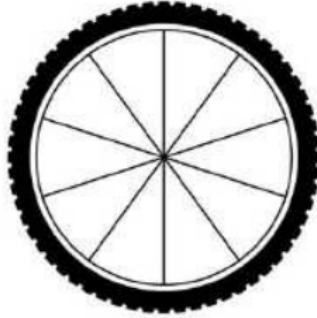


What is the area of the shaded part of the circle?

- A. $\frac{57}{4}\pi \text{ cm}^2$
- B. $\frac{135}{8}\pi \text{ cm}^2$
- C. $\frac{405}{8}\pi \text{ cm}^2$
- D. $\frac{513}{8}\pi \text{ cm}^2$



3. The spokes of a bicycle wheel form 10 congruent central angles. The diameter of the circle formed by the outer edge of the wheel is 18 inches.



What is the length, to the nearest 0.1 inch, of the outer edge of the wheel between two consecutive spokes?

- A. 1.8 inches
- B. 5.7 inches
- C. 11.3 inches
- D. 25.4 inches



SAMPLE ITEMS

1. Jason constructed two cylinders using solid metal washers. The cylinders have the same height, but one of the cylinders is slanted as shown.



Which statement is true about Jason's cylinders?

- A. The cylinders have different volumes because they have different radii.
- B. The cylinders have different volumes because they have different surface areas.
- C. The cylinders have the same volume because each of the washers has the same height.
- D. The cylinders have the same volume because they have the same cross-sectional area at every plane parallel to the bases.



2. What is the volume of a cylinder with a radius of 3 in. and a height of $\frac{9}{2}$ in.?

- A. $\frac{81}{2}\pi$ in.³
- B. $\frac{27}{4}\pi$ in.³
- C. $\frac{27}{8}\pi$ in.³
- D. $\frac{9}{4}\pi$ in.³



SAMPLE ITEMS

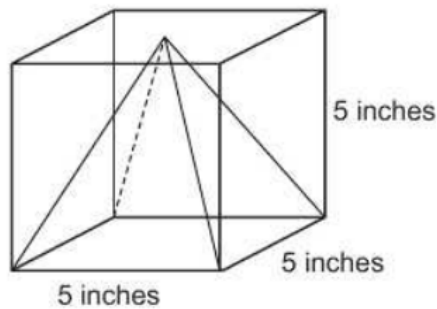
1. Joe counts 250 peach trees on 25% of the land he owns. He determined that there are 10 trees for every 1,000 square feet of land. About how many acres of land does Joe own?

$$1 \text{ acre} = 43,560 \text{ square feet}$$

- A. 2.3 acres
B. 10 acres
C. 43.56 acres
D. 2,500 acres



2. A square pyramid is packaged inside a box.



The space inside the box around the pyramid is then filled with protective foam. About how many cubic inches of foam is needed to fill the space around the pyramid?

- A. 8 cubic inches
B. 41 cubic inches
C. 83 cubic inches
D. 125 cubic inches



SAMPLE ITEMS

1. Which is an equation for the circle with a center at $(-2, 3)$ and a radius of 3?

- A. $x^2 + y^2 + 4x - 6y + 22 = 0$
- B. $2x^2 + 2y^2 + 3x - 3y + 4 = 0$
- C. $x^2 + y^2 + 4x - 6y + 4 = 0$
- D. $3x^2 + 3y^2 + 4x - 6y + 4 = 0$



2. What is the center of the circle given by the equation $x^2 + y^2 - 10x - 11 = 0$?

- A. $(5, 0)$
- B. $(0, 5)$
- C. $(-5, 0)$
- D. $(0, -5)$



SAMPLE ITEMS

1. Which information is needed to show that a parallelogram is a rectangle?

- A. The diagonals bisect each other.
- B. The diagonals are congruent.
- C. The diagonals are congruent and perpendicular.
- D. The diagonals bisect each other and are perpendicular.



2. Which point is on a circle with a center of $(3, -9)$ and a radius of 5?

- A. $(-6, 5)$
- B. $(-1, 6)$
- C. $(1, 6)$
- D. $(6, -5)$

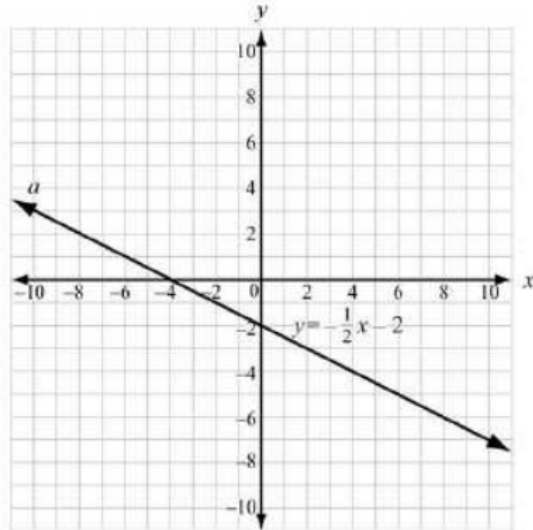


3. Given the points $P(2, -1)$ and $Q(-9, -6)$, what are the coordinates of the point on directed line segment \overline{PQ} that partitions \overline{PQ} in the ratio $\frac{3}{2}$?

- A. $\left(-\frac{23}{5}, -4\right)$
- B. $\left(-\frac{12}{5}, -3\right)$
- C. $\left(\frac{5}{3}, \frac{8}{3}\right)$
- D. $\left(-\frac{5}{3}, -\frac{8}{3}\right)$



4. An equation of line a is $y = -\frac{1}{2}x - 2$.

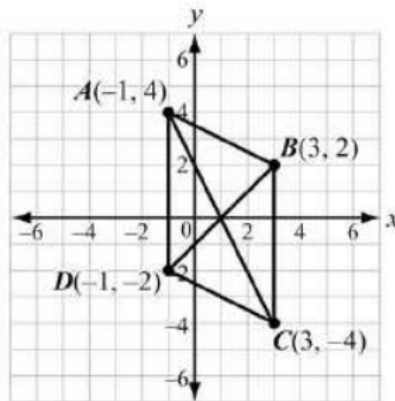


Which is an equation of the line that is perpendicular to line a and passes through the point $(-4, 0)$?

- A. $y = -\frac{1}{2}x + 2$
B. $y = -\frac{1}{2}x + 8$
C. $y = 2x - 2$
D. $y = 2x + 8$



5. Parallelogram $ABCD$ has vertices as shown.

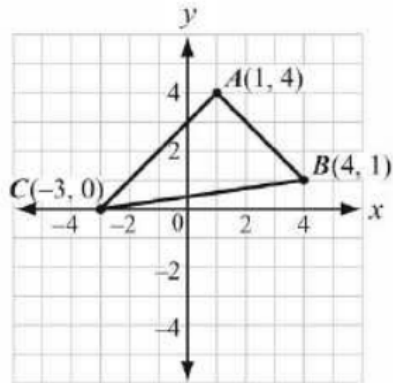


Which equation would be used in proving that the diagonals of parallelogram $ABCD$ bisect each other?

- A. $\sqrt{(3-1)^2 + (2-0)^2} = \sqrt{(1-3)^2 + (0+4)^2}$
- B. $\sqrt{(3+1)^2 + (2+0)^2} = \sqrt{(1+3)^2 + (0-4)^2}$
- C. $\sqrt{(-1-1)^2 + (4-0)^2} = \sqrt{(1-3)^2 + (0+4)^2}$
- D. $\sqrt{(-1+1)^2 + (4+0)^2} = \sqrt{(1+3)^2 + (0-4)^2}$



6. Triangle ABC has vertices as shown.



What is the area of the triangle?

- A. $\sqrt{72}$ square units
- B. 12 square units
- C. $\sqrt{288}$ square units
- D. 24 square units



SAMPLE ITEMS

1. In a particular state, the first character on a license plate is always a letter. The last character is always a digit from 0 to 9.

If V represents the set of all license plates beginning with a vowel, and O represents the set of all license plates that end with an odd number, which license plate belongs to the set V and O' ?



2. For which set of probabilities would events A and B be independent?

- A. $P(A) = 0.25$; $P(B) = 0.25$; $P(A \text{ and } B) = 0.5$
 B. $P(A) = 0.08$; $P(B) = 0.4$; $P(A \text{ and } B) = 0.12$
 C. $P(A) = 0.16$; $P(B) = 0.24$; $P(A \text{ and } B) = 0.32$
 D. $P(A) = 0.3$; $P(B) = 0.15$; $P(A \text{ and } B) = 0.045$

3. Assume that the following events are independent:

- The probability that a high school senior will go to college is 0.72.
- The probability that a high school senior will go to college and live on campus is 0.46.

What is the probability that a high school senior will live on campus, given that the person will go to college?

- A. 0.26
- B. 0.33
- C. 0.57
- D. 0.64



4. A random survey was conducted about gender and hair color. This table records the data.

Hair Color

	Brown	Blonde	Red	Total
Male	548	876	82	1,506
Female	612	716	66	1,394
Total	1,160	1,592	148	2,900

What is the probability that a randomly selected person has blonde hair, given that the person selected is male?

- A. 0.51
- B. 0.55
- C. 0.58
- D. 0.63



SAMPLE ITEMS

1. Mrs. Klein surveyed 240 men and 285 women about their vehicles. Of those surveyed, 155 men and 70 women said they own a red vehicle. If a person is chosen at random from those surveyed, what is the probability of choosing a woman or a person who does NOT own a red vehicle?

- A. $\frac{14}{57}$
B. $\frac{71}{105}$
C. $\frac{74}{105}$
D. $\frac{88}{105}$

2. Bianca spins two spinners that have four equal sections numbered 1 through 4. If she spins a 4 on at least one spin, what is the probability that the sum of her two spins is an odd number?

- A. $\frac{1}{4}$
B. $\frac{7}{16}$
C. $\frac{4}{7}$
D. $\frac{11}{16}$

3. Each letter of the alphabet is written on separate cards in red ink. The cards are placed in a container. Each letter of the alphabet is also written on separate cards in black ink. The cards are placed in the same container. What is the probability that a card randomly selected from the container has a letter written in black ink or the letter is A or Z?

A. $\frac{1}{2}$

B. $\frac{7}{13}$

C. $\frac{15}{26}$

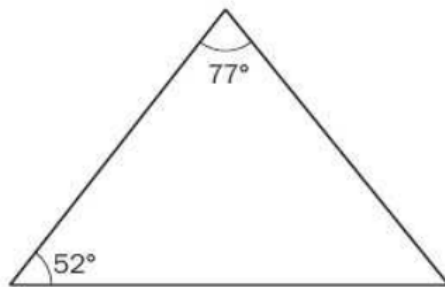
D. $\frac{8}{13}$



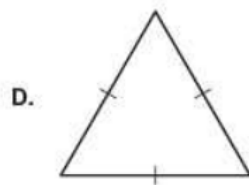
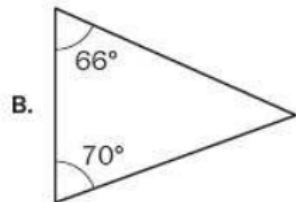
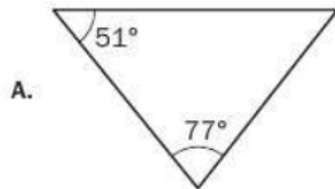
Item 1

Selected-Response

Look at the triangle.



Which triangle is similar to the given triangle?



Item 4

Technology-Enhanced

Triangle ABC is similar but not congruent to triangle DEF .

Part A

Which series of transformations could map triangle ABC onto triangle DEF ?

- A. translation 4 units up, rotation 75° about the origin
- B. reflection across the line $y = 2$, rotation 90° about the origin
- C. translation 3 units left, dilation of scale factor 2 centered at the origin
- D. reflection across the line $x = 1$, reflection across the line $y = 5$



Part B

Which equation must be true about triangle ABC and triangle DEF ?

- A. $AB = DE$
- B. $AC = EF$
- C. $m\angle A + m\angle B = m\angle D + m\angle F$
- D. $m\angle A + m\angle C = m\angle D + m\angle F$



Item 5

Selected-Response

Which equation is true?

- A. $\sin 40^\circ = \tan 50^\circ$
- B. $\cos 40^\circ = \cos 50^\circ$
- C. $\sin 40^\circ = \sin 50^\circ$
- D. $\cos 40^\circ = \sin 50^\circ$



Item 6

Technology-Enhanced

Triangle GHJ is a right triangle. Angle G has a measure of g° , angle H has a measure of h° , and angle J is a right angle.

Part A

Select TWO equations that must be true.

- A. $\sin(h^\circ) = \sin(g^\circ)$
- B. $\cos(g^\circ) = \sin(h^\circ)$
- C. $\cos(h^\circ) = \cos(g^\circ)$
- D. $\sin(h^\circ) + \cos(h^\circ) = \sin(g^\circ) + \cos(g^\circ)$
- E. $\sin(g^\circ) + \cos(h^\circ) = \cos(g^\circ) + \sin(h^\circ)$



Part B

Given that $\tan(g^\circ) = \frac{\sin(g^\circ)}{\cos(g^\circ)}$, which ratio must have a value equivalent to the tangent of g° ?

- A. $\frac{\cos(h^\circ)}{\sin(g^\circ)}$
- B. $\frac{\cos(h^\circ)}{\sin(h^\circ)}$
- C. $\frac{\sin(h^\circ)}{\cos(h^\circ)}$
- D. $\frac{\sin(h^\circ)}{\cos(g^\circ)}$



Item 7

Selected-Response

Which point is NOT on a circle with a center of $(0, 0)$ and a radius of 10?

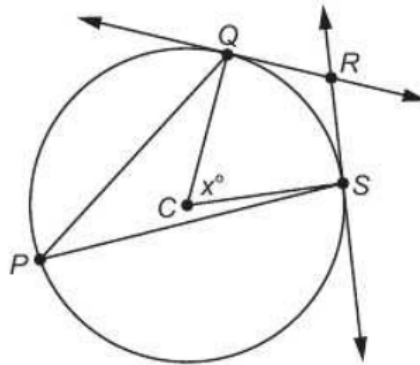
- A. $(0, 5)$
- B. $(10, 0)$
- C. $(0, -10)$
- D. $(-8, 6)$



Item 10

Technology-Enhanced

The figure shows circle C with tangent lines \overline{QR} and \overline{SR} .



The measure of $\angle QCS$ is x° .

Select **THREE** statements that are true about the figure.

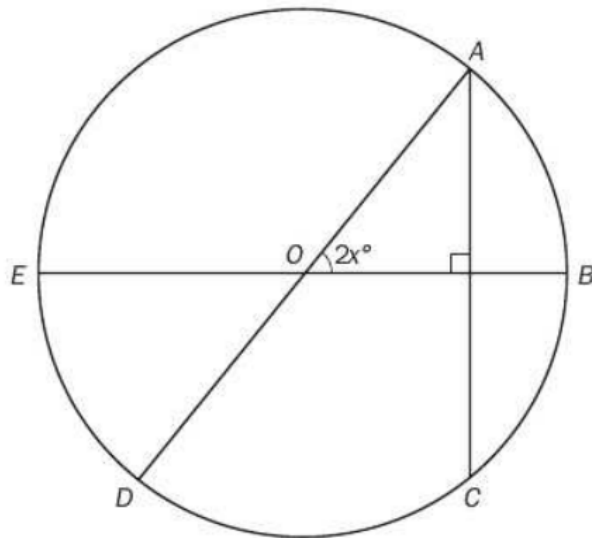
- A. The measure of $\angle QPS$ is $(90 - x)^\circ$.
- B. The measure of $\angle QPS$ is $\frac{1}{2}x^\circ$.
- C. The measure of $\angle PSR$ is 90° .
- D. The measure of $\angle CQR$ is 90° .
- E. The measure of $\angle QRS$ is $(180 - x)^\circ$.
- F. The measure of $\angle QRS$ is $2x^\circ$.



Item 11

Selected-Response

Points A , B , C , D , and E are located on the circle O , as shown in this figure.



The measure of \widehat{CD} is 80° . What is the value of x ?

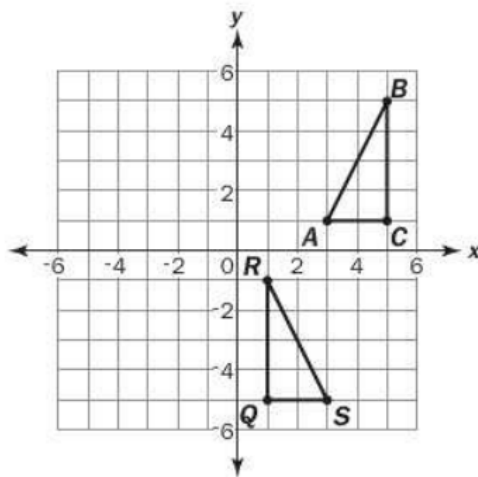
- A. 50
- B. 40
- C. 35
- D. 25



Item 13

Selected-Response

What is the sequence of transformations that carry triangle ABC to triangle QRS ?



- A. Triangle ABC is reflected across the line $x = 3$. Then it is translated 2 units down.
- B. Triangle ABC is reflected across the line $x = 3$. Then it is translated 6 units down.
- C. Triangle ABC is translated 2 units to the left. Then it is rotated 90 degrees counterclockwise about the point $(1, 1)$.
- D. Triangle ABC is translated 2 units to the right. Then it is rotated 90 degrees counterclockwise about the point $(1, 1)$.



Item 14

Selected-Response

Which transformation on quadrilateral $ABCD$ produces an image that does not preserve distance between points in quadrilateral $ABCD$?

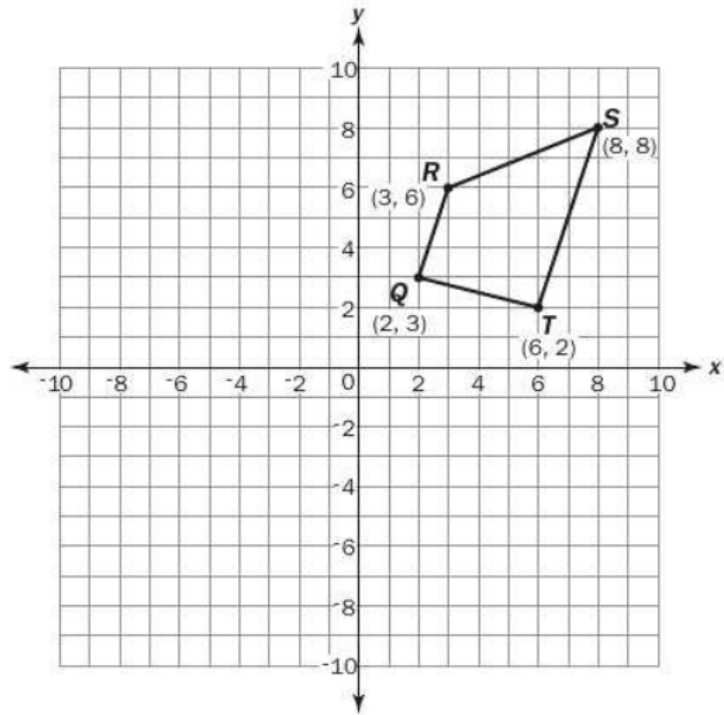
- A. reflection across $y = x$
- B. translation 3 units down and 4 units to the right
- C. dilation by a scale factor of 2
- D. rotation of 270 degrees



Item 15

Selected-Response

Look at quadrilateral $QRST$.



What is the image of point R after a counterclockwise rotation of 270 degrees about the origin?

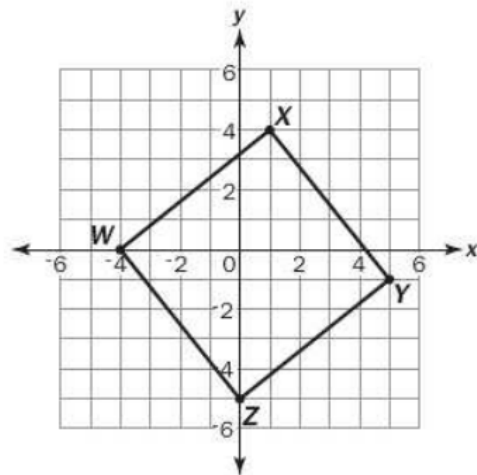
- A. $(6, -3)$
- B. $(-3, 6)$
- C. $(-6, 3)$
- D. $(3, -6)$



Item 16

Selected-Response

Look at the square $WXYZ$ on this coordinate plane.



What is the perimeter of the square $WXYZ$?

- A. 20 units
- B. 25.6 units
- C. 32 units
- D. 40.9 units



Item 17

Selected-Response

What is the coordinate of point P that lies along the directed line segment from $Q(2, 5)$ to $R(7, 12)$ and partitions the segment in the ratio of 3 to 2?

- A. (3, 4.2)
- B. (4.5, 8.5)
- C. (5, 9.2)
- D. (5, 7)



Item 18

Selected-Response

What is the equation of a line that is perpendicular to $y = \frac{1}{2}x - 6$ and passes through the point (6, 4)?

A. $y = -\frac{1}{2}x + 1$

B. $y = -\frac{1}{2}x + 7$

C. $y = -2x - 8$



D. $y = -2x + 16$

Item 19

Selected-Response

Study this equation of a circle.

$$x^2 - 6x + y^2 + 2y + 6 = 0$$

Which of these represents the center and radius of the circle?

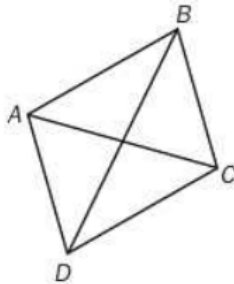
- A. center: (3, -1), radius: 4
- B. center: (-3, 1), radius: 4
- C. center: (3, -1), radius: 2
- D. center: (-3, 1), radius: 2



Item 20

Selected-Response

What proves that figure *ABCD* is a parallelogram?



- A. Diagonal *BD* bisects angle *ABC*.
- B. Side *AB* is equal to diagonal *AC*.
- C. Diagonals *BD* and *AC* bisect one another.
- D. Diagonal *BD* is greater than diagonal *AC*.



Item 23

Selected-Response

When rolling a fair, six-sided number cube, what is the probability of rolling an even number or a number less than 3?

- A. $\frac{5}{6}$
- B. $\frac{2}{3}$
- C. $\frac{1}{2}$
- D. $\frac{1}{3}$



Item 24

Selected-Response

What is the probability of rolling a 5 on a fair, six-sided number cube if you know that you rolled an odd number?

- A. $\frac{1}{6}$
- B. $\frac{1}{3}$
- C. $\frac{1}{2}$
- D. $\frac{2}{3}$

