Print this page

Course: AIR Geometry (supplement)
Unit: Geometry Short Cycle #1

Answer the following questions below:

1) Point P is on the directed line segment from point $X(-6, -2)$ to point $Y(6, 7)$ and divides the segment in the ratio 1:5. What are the coordinates of point P?
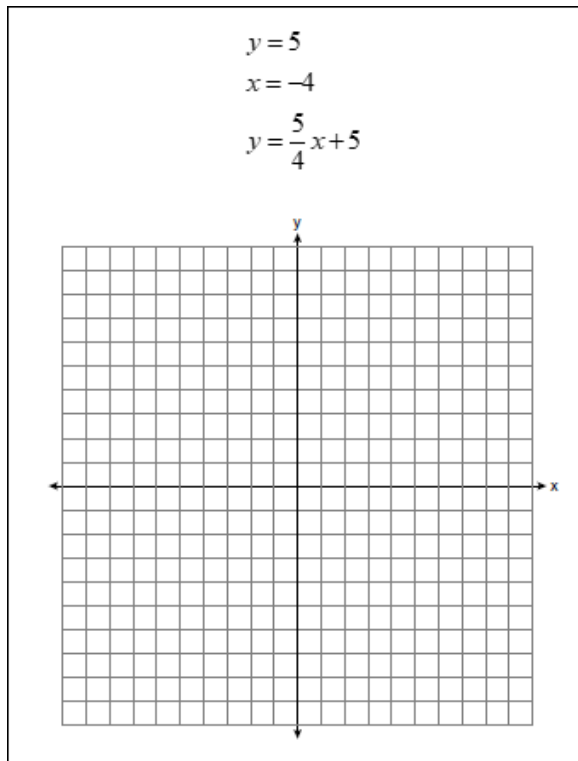
A. $\left(4, 5\frac{1}{2}\right)$ B. $\left(-\frac{1}{2}, -4\right)$ C. $\left(-4\frac{1}{2}, 0\right)$ D. $\left(-4, -\frac{1}{2}\right)$

○ A) Choice A
○ B) Choice B
○ C) Choice C
○ D) Choice D

Attachment(s): None

Save

2) On the accompanying set of axes, graph and label the following lines. Calculate and state the area, in square units, of the triangle formed by the three points of intersection. Click here to print the graph.

$$y = 5$$
$$x = -4$$
$$y = \frac{5}{4}x + 5$$

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Attachment(s): None

You may attach a file, if you choose. Attach File

Save

3) Write the equation of a line in slope-intercept form parallel to $y = 3x + 2$ that passes through the point (3, 5).

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Attachment(s): None

You may attach a file, if you choose. Attach File

Save

4) Solve.

In isosceles triangle RST shown below, $\overline{RS} \cong \overline{RT}$, M and N are midpoints of $\overline{RS}$ and $\overline{RT}$, respectively, and $\overline{MN}$ is drawn. If $MN = 3.5$ and the perimeter of $\triangle RST$ is 25, determine and state the length of $\overline{NT}$.
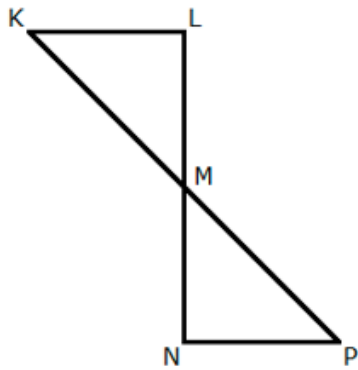

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Attachment(s): None

Save

5) Line r has slope of -0.5 and line s is perpendicular to it. Which of these could be the equations for line s?

   A) y = -0.5x – 2
   B) y = 0.5x + 0.5
   C) y = 2x – 0.5
   D) y = -2x + 2

Attachment(s): None

Save

6) Solve.

If $\angle L \cong \angle N$, what else is needed to prove $\triangle KLM \cong \triangle PNM$ using the Angle-Side-Angle rule?
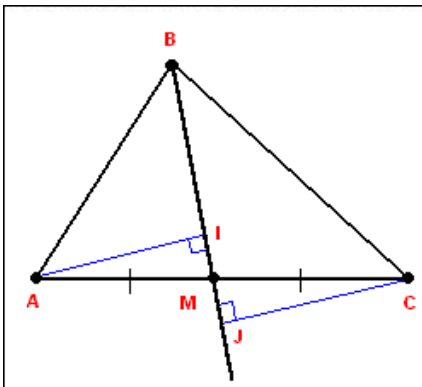
A. $\overline{KM} \cong \overline{PM}$

B. $\overline{LM} \cong \overline{PM}$

C. $\overline{LK} \cong \overline{NP}$

D. $\overline{LM} \cong \overline{NM}$

A) Choice A

B) Choice B

C) Choice C

D) Choice D

Attachment(s):   None

Save

7) *ABC* is a triangle and *M* is the midpoint of *AC*. *I* and *J* are points on BM such that *AI* and *CJ* are perpendicular to *BM*. Show that triangles *AIM* and *CJM* are congruent.
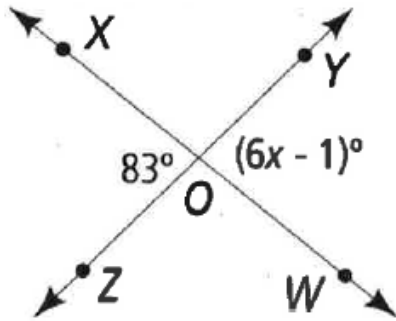
A) SSS

B) SAS

C) AAS

D) HL

Attachment(s):   None

Save

8) Select the correct paragraph proof that validates *x* = 14 as shown in the figure below.

A. Angles *XOZ* and *YOW* are congruent because they are complementary angles. So, their measures are equal by the definition of congruence and $83 = 6x - 1$. You can add 1 to each side of the equation by the Addition Property of Equality, which results in $84 = 6x$ | Then by the Division Property of Equality $x = \frac{84}{6}$, or $x = 14$.

B. Angles *XOZ* and *YOW* are congruent because they are vertical angles. So, their measures are equal by the definition of congruence and $83 = 6x - 1$ | You can add 1 to each side of the equation by the Addition Property of Equality, which results in $84 = 6x$ Then by the Division Property of Equality $x = \frac{84}{6}$, or $x = 14$.

○A) Choice A

○B) Choice B

Attachment(s):   None

[Save]

9) The coordinates of triangle BCD are B(8, 2), C(11, 13) and D(2, 6). Using coordinate geometry, prove that triangle BCD is an isosceles triangle.
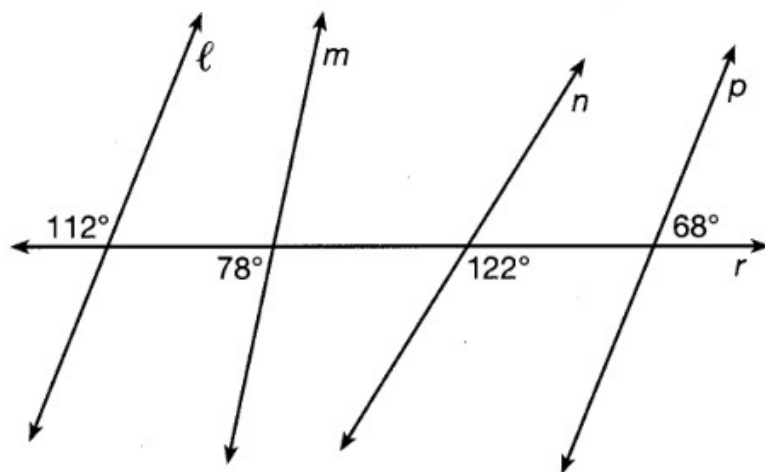
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Attachment(s):   None

You may attach a file, if you choose.   Attach File

[Save]

10) Solve.

In the diagram below, lines ℓ, m, n, and p intersect line r.

Which statement is true?

A. $\ell \parallel n$

B. $\ell \parallel p$

C. $m \parallel p$

D. $m \parallel n$

A) Choice A

B) Choice B

C) Choice C

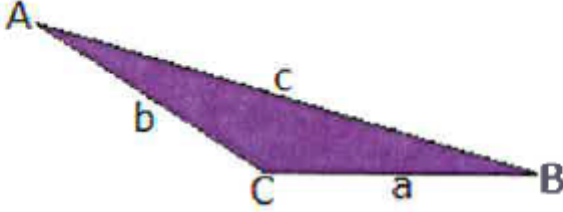D) Choice D

Attachment(s):   None

Save

All Finished! Review My Answers

Print this page

Course: AIR Geometry (supplement)
Unit: Geometry Short Cycle #2

Answer the following questions below:

1) Solve.



*Note: Picture not drawn to scale.

If *a* = 4 ft, *c* = 9 ft, and m∠B = 21°, what is the approximate area of △ABC?

A) 4.66 square feet

B) 16.8 square feet

C) 6.45 square feet

D) 12.9 square feet

Attachment(s):   None

Save

2) Howard is standing 96 yards from the bottom of a water reservoir. He estimates that the angle of elevation to the top of the water reservoir is about 50°. About how far is Howard from the top of the water reservoir?
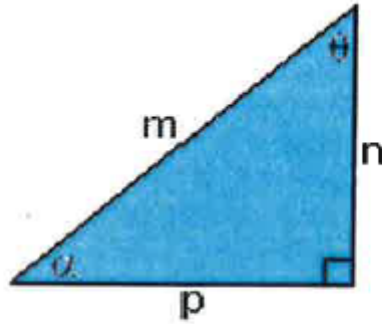

Picture is not drawn to scale.
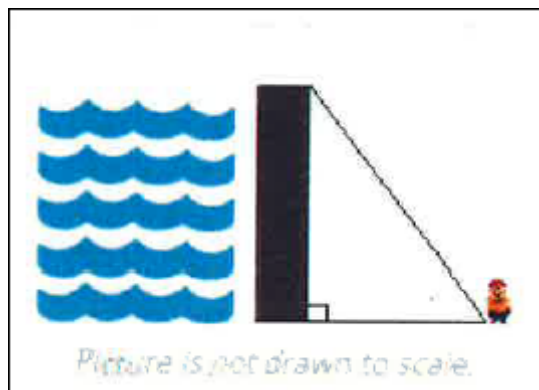
A) 62 yards

B) 81 yards

C) 149 yards

D) 125 yards

Attachment(s):   None

Save

3) Solve.

If $\alpha = 40°$ and m = 47 cm, what is the value of n to the nearest tenth of a centimeter?

A) 39.4 cm

B) 36 cm

C) 30.2 cm

D) 73.1 cm

Attachment(s):   None

Save

4) Mick wants to design a new escalator for a company. The vertical distance from the first floor to the second floor is 28 feet. The escalator should make an angle of 35° with the ground. What will be the total length of the escalator to the nearest foot?

A) 63 feet

B) 39 feet

C) 52 feet

D) 49 feet

Attachment(s):   None

Save

5) The vertices of a quadrilateral are: I(-4, 4), J(-2, 2), K(-8, -4), L(-10, -2). Which of the following is the strongest classification that identifies this quadrilateral?

A) The quadrilateral is a trapezoid.

B) The quadrilateral is a square.

C) The quadrilateral is a rhombus.

D) The quadrilateral is a rectangle.

Attachment(s):   None

Save

6) The vertices of a triangle are: J(2, -13), K(2, 5), L(14, -24). Which of the following correctly classifies the triangle?

A) The triangle is an acute equilateral triangle.

B) The triangle is a right scalene triangle.

C) The triangle is an acute isosceles triangle.

D) The triangle is an obtuse isosceles triangle.

Attachment(s):   None

[Save]

7) The vertices of a triangle PQR are: P(-2, 7), Q(-14, -2), R(-2, -11). What is the perimeter of triangle PQR?

A) 72 units

B) 48 units

C) 43 units

D) 33 units

Attachment(s):   None

[Save]

8) Which of the following transformations preserves the measures of the angles but changes the lengths of the sides of the figure?

A) rotation

B) dilation

C) translation

D) reflection

Attachment(s):   None

[Save]

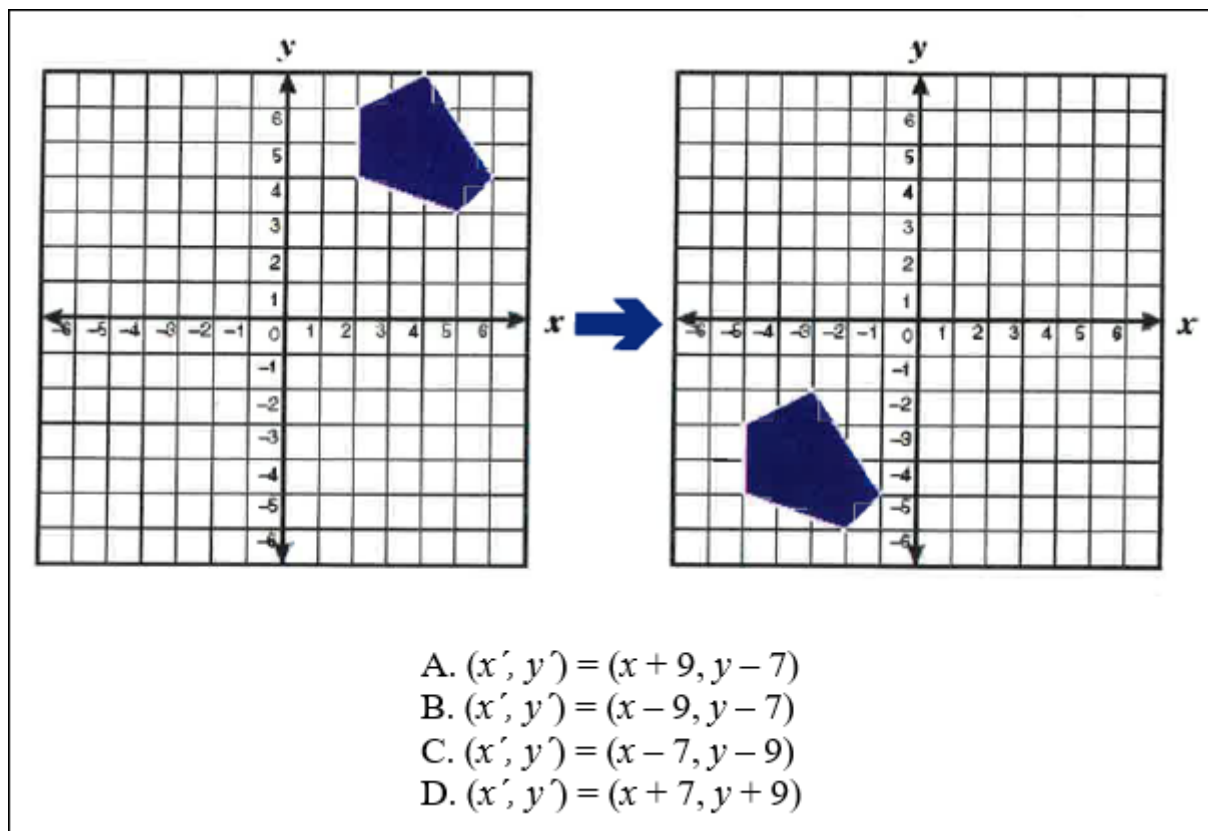9) What rule for reflection across the x-axis followed by a translation 9 units to the left and 8 units up?

A. $(x', y') = (x + 9, -y - 8)$
B. $(x', y') = (-x + 9, y - 8)$
C. $(x', y') = (-x - 9, y - 8)$
D. $(x', y') = (x - 9, -y + 8)$

A) Choice A

B) Choice B

C) Choice C

D) Choice D

Attachment(s):   None

[Save]

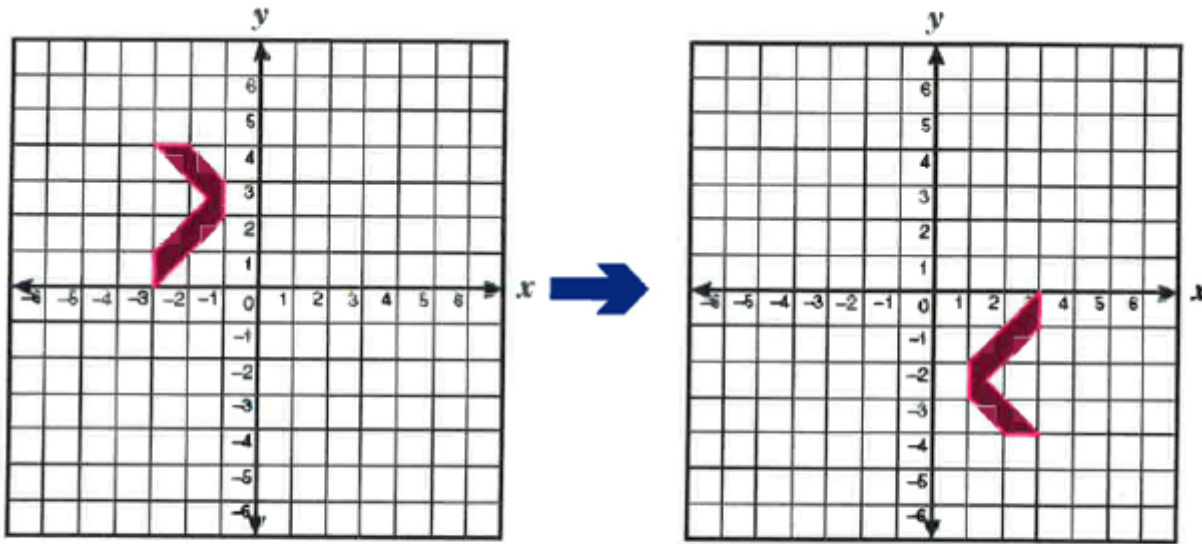10) What is the rule for the transformation shown below?

A. $(x', y') = (x + 9, y - 7)$
B. $(x', y') = (x - 9, y - 7)$
C. $(x', y') = (x - 7, y - 9)$
D. $(x', y') = (x + 7, y + 9)$

○ A) Choice A

○ B) Choice B

○ C) Choice C

○ D) Choice D

Attachment(s):   None

[Save]

11) What is the rule for the transformation shown below?

A. $(x', y') = (y, x)$
B. $(x', y') = (-x, y)$
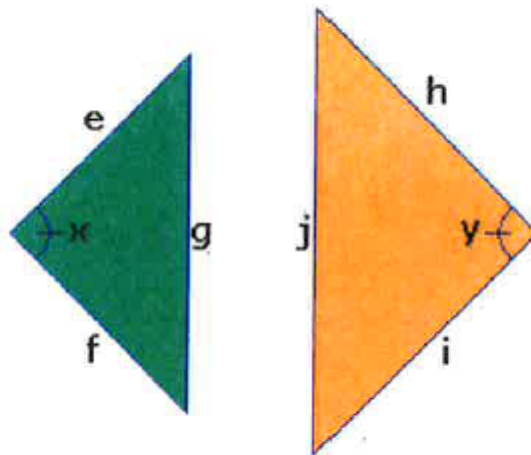C. $(x', y') = (-y, -x)$
D. $(x', y') = (-x, -y)$

○ A) Choice A
○ B) Choice B
○ C) Choice C
○ D) Choice D

Attachment(s):   None

[Save]

12) Solve.

In the triangles below, $\angle x \cong \angle y$, $e = f = 13$ inches, and $h = i = 16.25$ inches.

If $g = 18.2$ inches, what is the measure of j?

A) 18.2 in

B) 22.75 in

C) 14.56 in

D) 18.655 in

Attachment(s):   None

Save

13) Solve.

In the figure below, the measure of ∠m is 28° and the measure of ∠p is 152°. Determine how the triangles can be shown to be similar.

A) The triangles are similar by AA.

B) The triangles are similar by SSS.

C) The triangles are not similar to each other.

D) The triangles are similar by SAS.

Attachment(s):   None

Save

14) With the information given below, determine how triangle TUD can be shown to be similar to triangle SUY.

$TU = 24$ cm, $DU = 27$ cm, $ST = 16$ cm, $YD = 18$ cm

A) The triangles are similar by SAS.

B) The triangles are not similar to each other.

C) The triangles are similar by AA.

D) The triangles are similar by SSS.
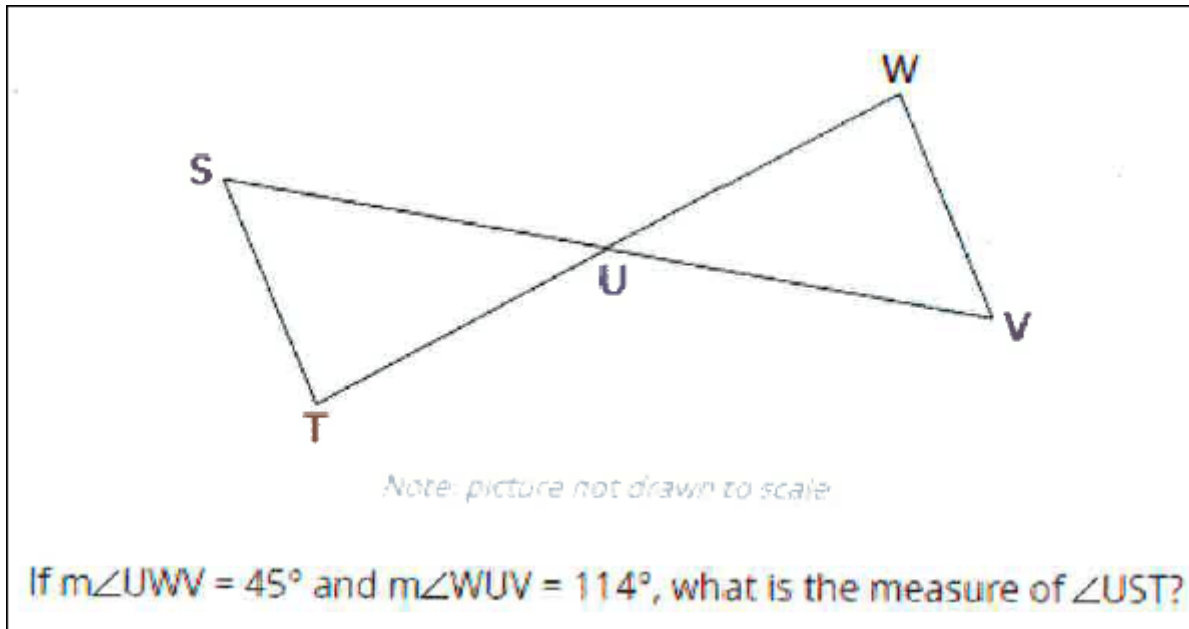
Attachment(s):   None

Save

15) A 60-inch tall boy is standing next to a 40-foot tall building. The boy casts a shadow that is 24 inches long. What is the length of the building's shadow?

A) 13 1/3 feet

B) 14 6/11 feet

C) 17 7/9 feet

D) 16 feet

Attachment(s):   None

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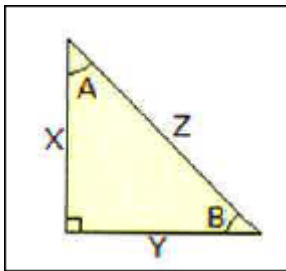16) In the figure below, triangle STU is congruent to triangle VWU.

Note: picture not drawn to scale

If m∠UWV = 45° and m∠WUV = 114°, what is the measure of ∠UST?

A) 69°

B) 24°

C) 45°

D) 21°

Attachment(s):   None

Save

17) If X = 18 yards, Y = 80 yards, and Z = 82 yards, what is the sin of ∠B?

○ A) 40/41

○ B) 9/41

○ C) 41/40

○ D) 9/40

Attachment(s):   None

[Save]

18) A cube is sliced on an angle, through corresponding points on the respective sides, and containing two vertices, as shown below. Which figure best represents the cross-section parallel to the slice?
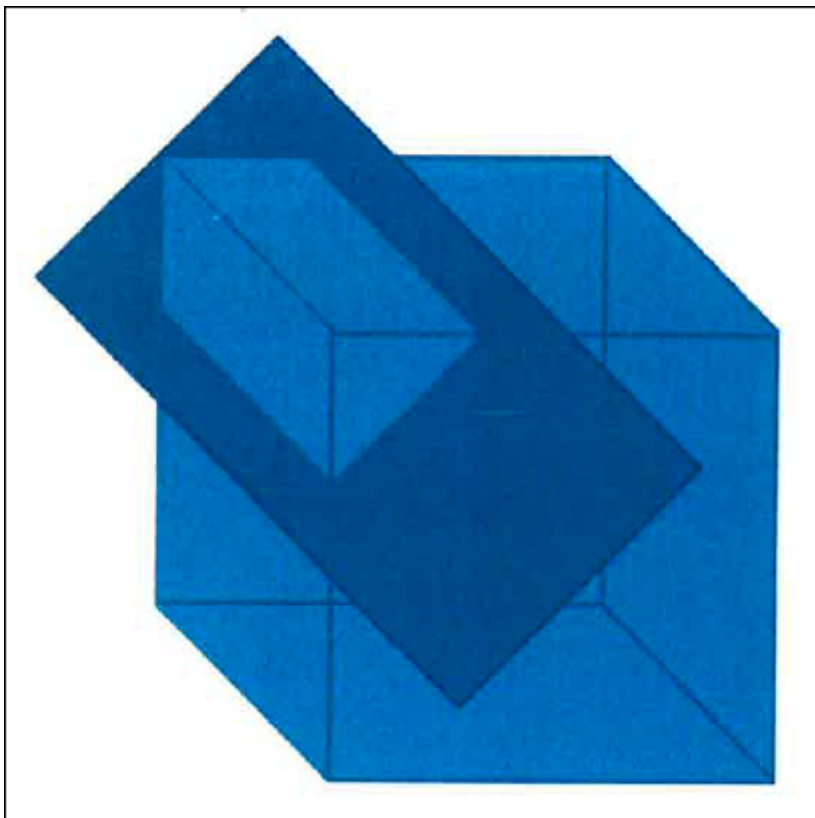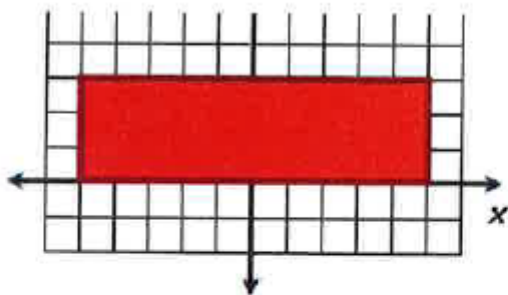

○ A) triangle

○ B) rectangle

○ C) square

○ D) trapezoid

Attachment(s):   None

[Save]

19) Solve.

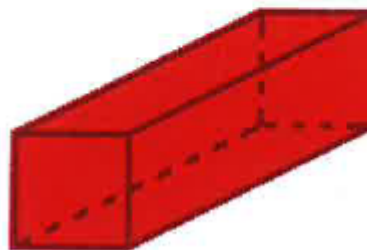If the image above is rotated about the y-axis, which of the following images best represents the result?

W.

X.

Y.

Z.

A) W

B) X

C) Y

D) Z

Attachment(s):   None

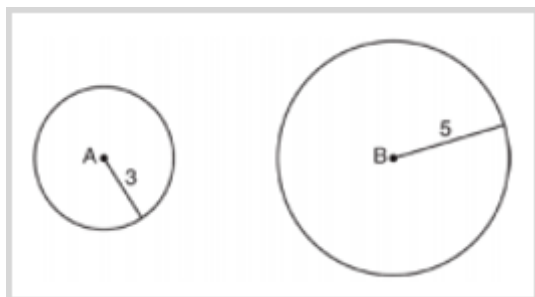Save

All Finished! Review My Answers

Print this page

Course: AIR Geometry (supplement)
Unit: Geometry Short Cycle #3

Answer the following questions below:

1) As shown in the diagram below, circle *A* has a radius of 3 and circle *B* has a radius of 5.   Which transformation best explains shy circles *A* and *B* are similar?

○ A) Dilation

○ B) Rotation

○ C) Reflection

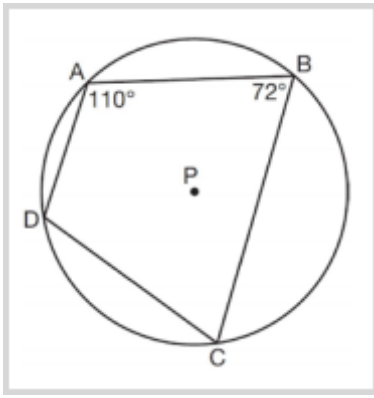○ D) Translation

Attachment(s):   None

Save

2) Solve.

In the diagram below of circle *O*, m∠*ABC* = 24.

What is the m∠*AOC*?
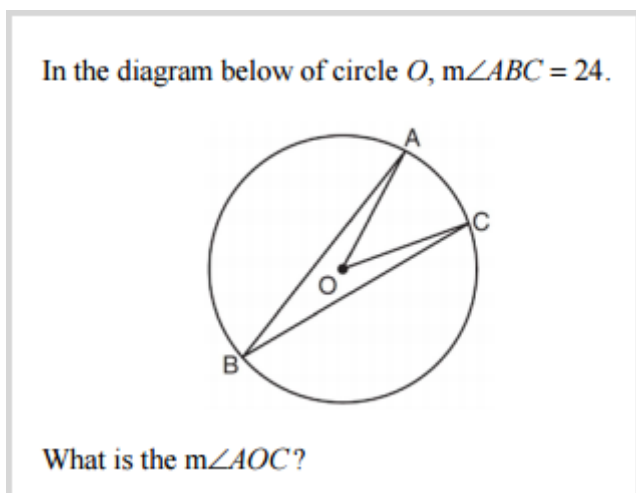
○ A) 12

○ B) 24

○ C) 48

○ D) 60

Attachment(s):   None

Save

3) In the diagram below, quadrilateral *ABCD* is inscribed in circle *P*. What is m ∠ *ADC*?

A) 70º

B) 72º

C) 108°

D) 110°

Attachment(s):   None

Save

4) The accompanying diagram shows the path of a cart traveling on a circular track of radius 2.40 meters. The cart starts at point *A* and stops at point *B*, moving in a counterclockwise direction. What is the length of minor arc *AB*, over which the cart traveled, to the *nearest tenth of a meter*?
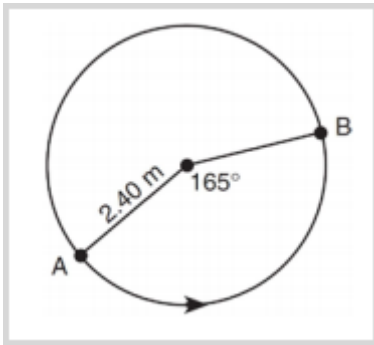
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Attachment(s):   None
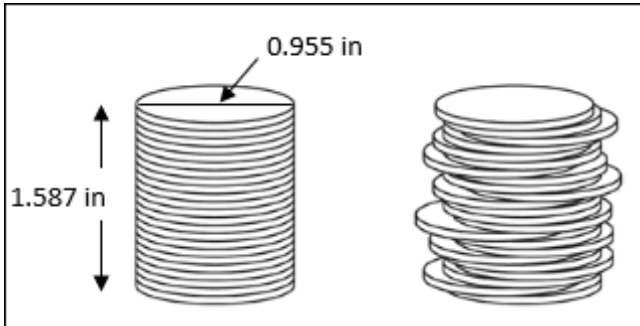
You may attach a file, if you choose. Attach File

Save

5) What are the coordinates of the center and the length of the radius of the circle represented by the equation $x^2 + y^2 - 4x + 8y + 11 = 0$?

A) center (2, –4) and radius 3

B) center (–2, 4) and radius 3

C) center (2, –4) and radius 9

Attachment(s):   None

Save

6) Two stacks of 23 quarters each are shown below. One stack forms a cylinder but the other stack does not form a cylinder. The diameter of the quarter is 0.955 in and the height of a stack of 23 quarters is 1.587 in. Use Cavalieri's principle to calculate the volume of the stack on the right to the nearest tenth?
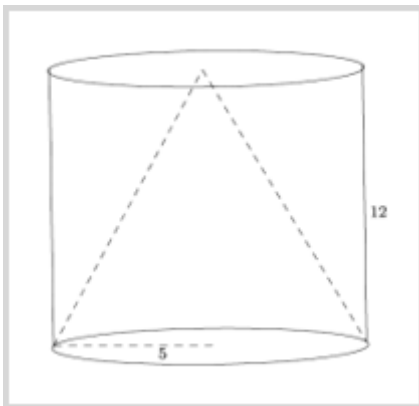

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Attachment(s):   None

You may attach a file, if you choose. Attach File

Save

7) A cone fits inside a cylinder so that their bases are the same and their heights are the same, as shown in the diagram. Calculate the volume that is inside the cylinder but outside of the cone.
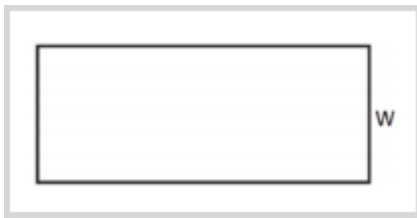

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You may attach a file, if you choose. Attach File

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8) If the rectangle below is continuously rotated about side *w*, which solid figure is formed?
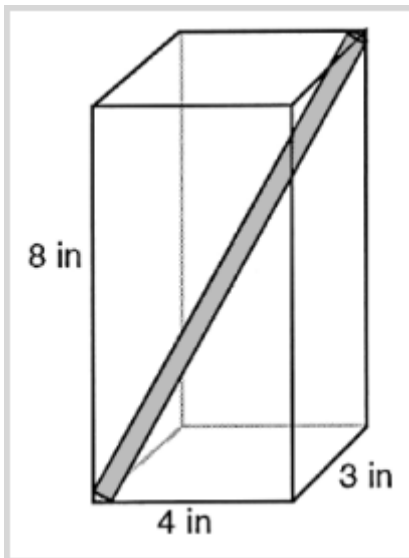
○ A) pyramid
○ B) rectangular prism
○ C) cone
○ D) cylinder

Attachment(s):   None

[Save]

9) A straw is placed into a rectangular box that is 3 inches by 4 inches by 8 inches, as shown in the accompanying diagram. If the straw fits exactly into the box diagonally from the bottom left front corner to the top right back corner, how long is the straw, to the nearest tenth of an inch?
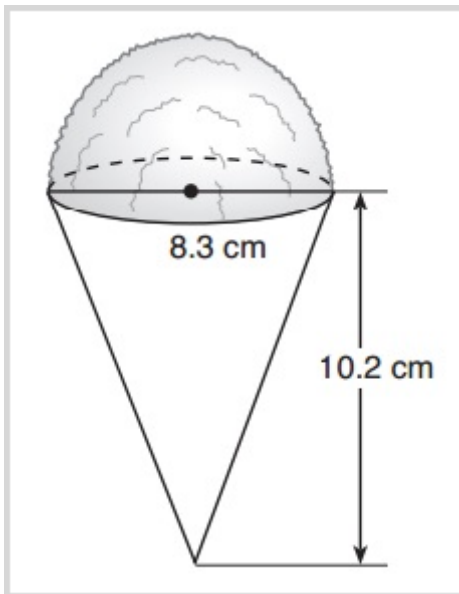

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Attachment(s):   None

You may attach a file, if you choose. Attach File
[Save]

10) A snow cone consists of a paper cone completely filled with shaved ice and topped with a hemisphere of shaved ice, as shown in the diagram below. The inside diameter of both the cone and the hemisphere is 8.3 centimeters. The height of the cone is 10.2 centimeters. Determine the amount of volume of the ice needed to make 50 snow cones to the nearest tenth.

8.3 cm

10.2 cm

[text box]

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You may attach a file, if you choose. Attach File

[Save]

11) Twelve players make up a high school basketball team. the team jerseys are numbered 1 through 12. The players wearing the jerseys numbered 3, 6, 7, 8, and 11 are the only players who start a game. Using set notation, list the complement of this subset.

[text box]

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You may attach a file, if you choose. Attach File

[Save]

12) Given A and B are independent events, P(A) = 1/2 and P(A and B) = 1/6. Find P(B).

[text box]

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Attachment(s):   None

You may attach a file, if you choose. Attach File

[Save]

13) In order to study the relationship between the amount of sleep a student gets and his or her school performance, a researcher collected data from 120 students. The two-way frequency table shows the number of students who passed and failed an exam and the number of students who got more or less than 6 hours of sleep the night before. To the nearest percent, what is the probability that a student who failed the exam got less than 6 hours of sleep?

	Passed exam	Failed exam	Total
Less than 6 hours of sleep	12	10	22
More than 6 hours of sleep	90	8	98
Total	102	18	120

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Attachment(s): None

[Save]

14) Felipe surveyed students at his school. He found that 78 students own a cell phone and 57 of those students own an MP3 player. There are 13 students that do not own a cell phone, but own an MP3 player. Nine students do not own either device. Fill in the table summarizing the data.

	MP3 Player	No MP3 Player	Total
Cell Phone			
No Cell Phone			
Total			

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Attachment(s): None

You may attach a file, if you choose. Attach File

[Save]

Use the following information to answer the next three questions.

You randomly draw a card from a standard deck of playing cards. Let *A* be the event that the card is an ace, let *B* be the event that the card is black, and let *C* be the event that the card is a club. Find the specified probability as a fraction.

15) P (A|B) = ?

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Attachment(s):   None

You may attach a file, if you choose. Attach File

Save

16) P (B|A) = ?

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Attachment(s):   None

You may attach a file, if you choose. Attach File

Save

17) P (C|A) = ?

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Attachment(s):   None

You may attach a file, if you choose. Attach File

Save

18) The guidance department has reported that of the senior class, 2.3% are members of the key club, *K*, 8.6% are enrolled in AP Physics, *P*, and 1.9% are in both. Determine the probability of *P* given *K*, to the nearest tenth of a percent.

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You may attach a file, if you choose. Attach File

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19) A suburban high school has a population of 1376 students. The number of students who participate in sports is 649. The number of students who participate in music is 433. If the probability that a student participates in either sports or music is 974/1376, what is the probability that a student participates in both sports and music?

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Attachment(s):   None

You may attach a file, if you choose. Attach File

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All Finished! Review My Answers