EOC Review:

Geometry EOC

Focus Areas:

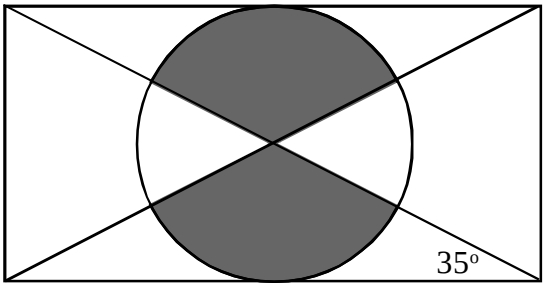
Trigonometric Ratios
Area and Volume including Changes in Area/Volume
Geometric Probability
Proofs and Deductive Reasoning including Conditionals
Properties of Polygons and Circles

I will be trying my best to incorporate several of these areas into questions to maximize our review. These will be more difficult than what you will find on the EOC.

Example:

1.

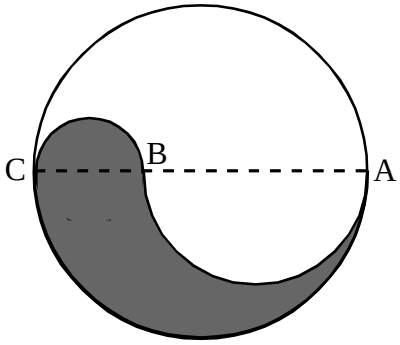
In the figure below, what is the probability of a random dart landing inside the shaded area on the rectangular target below?



Practice:

1.

In the circle below, AB = 2BC. What is the probability of hitting the shaded region with a random dart?



2.

Every third vertex of a regular nonagon with 2-inch sides is connected to form an equilateral triangle. Surrounding the inscribed triangle there are three trapezoids. What is the height of each trapezoid?

Name_____ Period _____

Geometry EOC Review

Geometry EOC

Try to solve each using what you have learned about:
Trigonometric Ratios
Area and Volume including Changes in Area/Volume
Geometric Probability
Proofs and Deductive Reasoning including Conditionals
Properties of Polygons and Circles
Transformations on the Plane

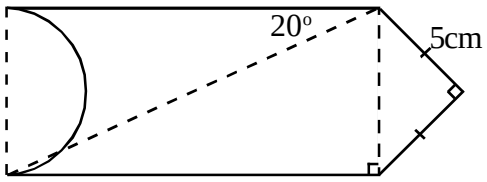
1:
If the edge length of a cube is increased by 30%, by what percent is the surface area increased?

A. 30% B. 69% C. 119.7% D. 169%

2:
In regular pentagon ABCDE, segment AC divides the pentagon into a trapezoid and a triangle. What is the probability that a random dart that lands within the pentagon will land within the triangular section (to the nearest percent)?

A. 26% B. 28% C. 30% D. 32%

3:
Estimate the perimeter of the composite figure below to the nearest centimeter.



A. 59cm B. 60cm C. 61cm D. 71cm

4:
Triangle ABC has vertices at A(0,0) B(-2,6) and C(8,9). If the triangle is dilated with a scale factor of 2.4, approximately what will its new area be?

A. $33u^2$ B. $79.2u^2$ C. $190u^2$ D. $380u^2$

5:
Two cylindrical canisters are created with sheets of cardboard 5 inches tall and 3 inches wide, one rolled the long way and the other rolled the short way. What is the ratio of the volume of the large canister to the volume of the small one?

A. 5/3 B. 3/2 C. 25/9 D. 9/5

Name_____ Period _____

Geometry EOC Review

Geometry EOC

Try to solve each using what you have learned about:
Trigonometric Ratios
Area and Volume including Changes in Area/Volume
Geometric Probability
Proofs and Deductive Reasoning including Conditionals
Properties of Polygons and Circles
Transformations on the Plane

1: Which of the following statements would be true, given the conditional statement: If the radius of a circle is doubled, then the area of the circle will be quadrupled.

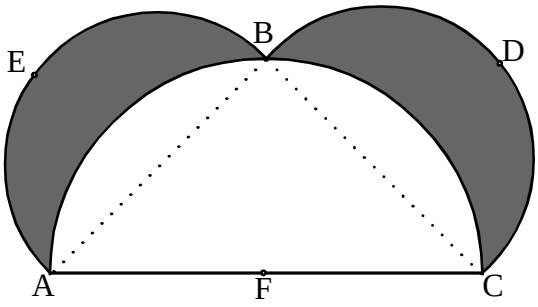
I. The Contrapositive. II. The Converse III. The Inverse.

A. I only B. I and II only C. I, II, and III D. None.

2: Pentagon ABCDE is inscribed within a circle. What is the probability that a random dart which lands within the boundaries of the circle will NOT land within the pentagon?

A. 22% B. 24% C. 26% D. 28%

3: Congruent semicircles AEB and BDC overlap semicircle ABC.
If the radius of the large semicircle is 1, what is the area of the shaded region?



A. 1 B. 2 C. π D. 2π

4: Parallelogram ABCD has vertices at A(-3,0) B(5, -2) C(7,-6) and D (-1,-4). The diagonals intersect at X. What is the area of triangle ABX?

A. $7u^2$ B. $7.5u^2$ C. $8u^2$ D. $8.5u^2$

5:
Melvin wants construct a regular tetrahedron which has 3 times the volume of a regular tetrahedron whose edges are 8 cm long. About how long should he make the edges?

A. 11.5cm B. 12.1cm C. 13.9cm D. 24.0cm

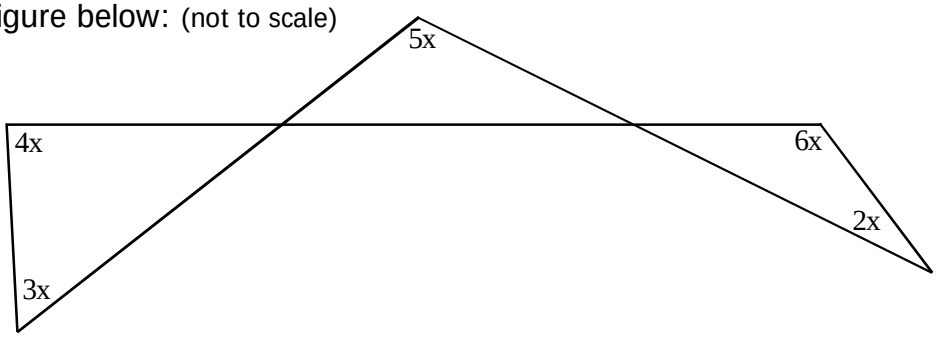
Name_____ Period _____

Geometry EOC Review

Geometry EOC

Solve:

1: Solve for x in the figure below: (not to scale)

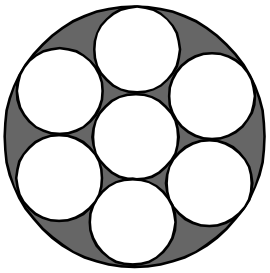


A. $x=15^o$ B. $x=18^o$ C. $x=20^o$ D. Cannot be determined.

2. The interior angles of a regular polygon measure 175^o. If the perimeter of the polygon is 1,440 cm, what is length of one side?

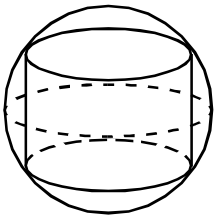
A. 10cm B. 20cm C. 72cm D. 144cm

3. What is the probability that a random dart which strikes the board below will land in the shaded area?
(all circles are tangent)



A. 1/9 B. 2/9 C. 1/3 D. 4/9

4: A 6cm tall cylinder is inscribed within a sphere with a 5cm radius. What is the volume of the cylinder?



A. 54π cm^3 B. 96π cm^3 C. 150π cm^3 D. 216π cm^3

5: For the following points on the plane, what is the measure of angle ABC?
A (9,-1) B (-3, -4) C (0,11) (to the nearest degree)

A. 56^o B. 60^o C. 65^o D. 67^o

6: The radius of a cylinder is increased by 40%, but the height is cut in half. What is the resulting change in volume?

A. 2% decrease B. 30% decrease C. 30% increase D. 2% increase

Name_____ Period _____

Geometry EOC Review

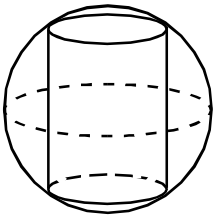
Geometry EOC

Solve:

7: The height of a right square pyramid is 10 inches. If the edges of the pyramid are congruent, what is the area of the pyramid's base?

A. $100in^2$ B. $144in^2$ C. $196in^2$ D. $200in^2$

8. A cylinder is is inscribed in a sphere. The cylinder is 4 feet tall and has a 14-inch diameter. What is the best approximation of the volume of the circumscribed sphere?

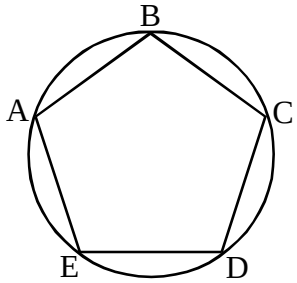


A. $10\pi\ ft^3$ B. $12\pi\ ft^3$ C. $24\pi\ ft^3$ D. $36\pi\ ft^3$

9. The volume and surface area of a sphere are identical. What is its circumference?

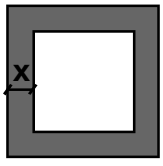
A. π B. 3π C. 6π D. 12π

10: Regular pentagon ABCDE is inscribed in a circle. The sides of the pentagon are 6cm long. What is the length of arc AB?



A. 6.15 cm B. 6.29 cm C. 6.37 cm D. 6.41 cm

11: Mr. Lewis wants to create a carnival game for Ligonfest. Students throw darts at a board and win if they hit the shaded area of the figure below.
Mr. Lewis wants the area of the shaded region to equal that of the unshaded region, which is a 5-foot square. How wide should the shaded border be (x)?



A. $5\sqrt{2}-5$ B. $5-\frac{5\sqrt{2}}{2}$ C. $\frac{5\sqrt{2}-5}{2}$ D. $5-\frac{\sqrt{2}}{2}$

Name_____ Period _____

Geometry EOC Review

Geometry EOC

Solve:

1: Which of the algebraic rules below describes a 90^o counter-clockwise rotation then a translation up five units? (x, y) ⟶

I. (-y, x+5)
II. (-x-5, y)
III. (-y-5, x)

A. I B. I and II C. II and III D. I, II, and III

2. What is the volume of a regular tetrahedron whose edges are one foot long?

A. $144\sqrt{3}$ in^3 B. $432\sqrt{3}$ in^3 C. $144\sqrt{2}$ in^3 D. $432\sqrt{2}$ in^3

3. The diagonal lengths of a rhombus are x and y. Express *x* in terms of y for a rhombus with an area of 10cm^2.

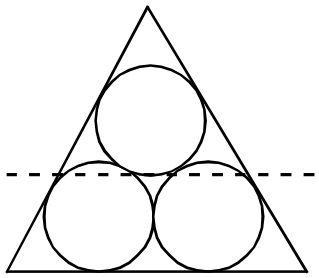
A. x=20y B. x=.05y C. x=0.2y D. x=20/y

4: The interior angles of a polygon measure 156^o. What is the polygon's area if its sides are 2 inches long?

A. $15\tan 78^o$ B. $30\tan 78^o$ C. $15\tan 12^o$ D. $30\tan 12^o$

5: In the diagram below, all circles are tangential and the dotted line is parallel to the base of the triangle, tangent to the top circle. What is the probability that a random point selected within the triangle in the diagram below will be above the dotted line?

(hard… use 30-60-90 triangle properties and area properties)



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

Name_____ Period _____

Geometry EOC Review

Geometry EOC

1: Which of the following statements would be true, given the conditional statement: If a quadrilateral is a rhombus, then opposite angles of the quadrilateral are congruent.

I. The Contrapositive. II. The Converse III. The Inverse.

A. I only B. I and II only C. I, II, and III D. None of these.

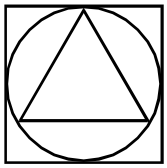
2: For the following points on the plane, what is the measure of angle ABC?
A (-5,1) B (3, 7) C (3,1) (to the nearest degree)

A. 31^o B. 37^o C. 53^o D. 59^o

3. The interior angles of a regular polygon measure 172^o. If the perimeter of the polygon is 900 cm, what is length of its apothem to the nearest cm?

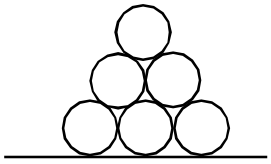
A. 20cm B. 72cm C. 143cm D. 286cm

4. An equilateral triangle is inscribed in a circle which is inscribed in a square. What is the probability that a random dart landing within the square will also land inside the triangle?



A. $\frac{13}{40}$ B. $\frac{\pi}{9}$ C. $\frac{\sqrt{2}}{4}$ D. $\frac{3\sqrt{3}}{16}$

5: What is the height of the stack of circles below if the radius of each identical circle is 5cm? (circles are tangent)



A. $10\sqrt{3}$ B. $10\sqrt{3}+5$ C. $10\sqrt{3}+10$ D. $30-2\sqrt{3}$

6: Which of the following matrices could be used in multiplicaton to create a reflection across y=-x and a dilation with a scale factor of 2?

A. $\begin{bmatrix} 0 & -2 \\ -2 & 0 \end{bmatrix}$ B. $\begin{bmatrix} 0 & 2 \\ 2 & 0 \end{bmatrix}$ C. $\begin{bmatrix} -2 & 0 \\ 0 & -2 \end{bmatrix}$ D. $\begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$

Name_____ Period _____

Geometry EOC Review

Geometry EOC

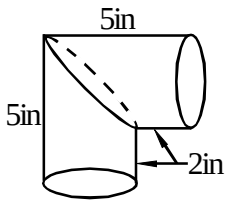
1: A cylinder and a cube have identical heights and volumes of $216cm^3$. What is the approximate diameter of the cylinder?

A. 3.4cm B. 4.4cm C. 6.8cm D. 11.5cm

2: The center of a sphere is at (9, 8, -3). On diameter AB, endpoint A is at (6, -1, 8). What are the coordinates of endpoint B?

A. (7.5, 3.5, 2.5) B. (12, -10, -14) C. (12, 17, -14) D. (3, -10, 19)

3: Two 5-inch pipes, each with a 3-inch diameter, are connected to form an 'L' as shown. What is the area of the *exterior* surface of the pipe?



A. 15π B. 18π C. 21π D. 30π

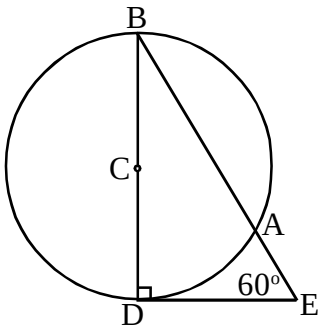
4: A regular hexagon and a square have equal perimeters. What is the ratio of the area of the square to the area of the hexagon?

A. $\frac{2\sqrt{3}}{3}$ B. $\frac{\sqrt{3}}{2}$ C. $\frac{\sqrt{2}}{3}$ D. $\frac{\sqrt{3}}{4}$

5: A large pizza at Mario's has a 14-inch diameter and costs $12.95. If the medium 12-inch pizza costs the same per square inch, what is the cost of a medium pizza?

A. $11.10 B. $10.21 C. $9.51 D. $8.16

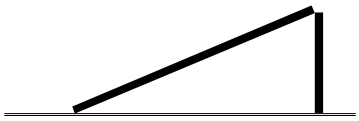
6: Find the area of circle C below if AE = 1cm.



A. 2π cm^2 B. 3π cm^2 C. 4π cm^2 D. 6π cm^2

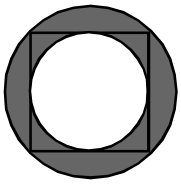
Geometry EOC Review

7: After a hurricane, you find a telephone pole that has snapped and fallen. From the base of the pole to the tip on the ground is 25 feet. If the original pole was 30 feet high, what is the approximate height of the break in the pole?



A. 4.4 feet B. 4.6 feet C. 4.8 feet D. 5.4 feet

8: What is the area of the shaded annulus below if the sides of the inscribed square are 6 cm long?



A. 9π cm^2 B. 18π cm^2 C. 27π cm^2 D. 36π cm^2

9: A rectangular prism has one endpoint at the origin. The opposite endpoint is at (-7, 6, -4). Which of the following points is also a vertex of the rectangular prism?

A. (0, 6, -4) B. (0, -6, 4) C. (-7, 6, 4) D. (-4, 6, -7)

10: What is the best approximation of the diagonal length of the prism in #7?

A. 5 units B. 7 units C. 10 units D. 12 units

11: The sum of the interior angles in a convex polygon is less than 1000^o. What is the maximum number of sides in the polygon?

A. 7 sides B. 8 sides C. 9 sides D. 10 sides

12: Which statement is logically equivalent to the following:
If a quadrilateral has four right angles, then it is a rectangle.

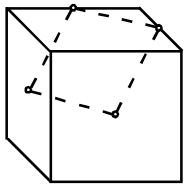
A. If a quadrilateral does not have four right angles, then it is not a rectangle.
B. If a quadrilateral is not a rectangle, then it does not have four right angles.
C. If a quadrilateral is a rectangle, then it has four right angles.
D. If a rectangle has four right angles, then it is a quadrilateral.

Name_____ Period _____

Geometry EOC Review

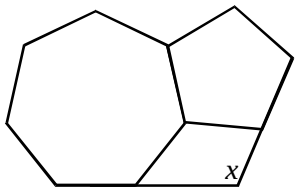
Geometry EOC

1: The centers of two sides of a cube of edge length 2 are connected to the midpoints of two edges of the cube to form a quadrilateral. Find its area.



A. $2\sqrt{2}$ B. $2\sqrt{3}$ C. $\sqrt{6}$ D. 4

2: A regular pentagon and a regular heptagon share an edge. Approximate angle measure x to the tenth of a degree.



A. 113.1° B. 113.3° C. 113.5° D. 113.7°

3: The nine interior angle measures of a nonagon are consecutive integers. What is the measure of the smallest angle in the nonagon?

A. 116° B. 126° C. 136° D. 146°

4: The diagonals of a parallelogram intersect at a 45° angle. If the diagonal lengths are 8cm and 10cm, what is the area of the parallelogram?

A. $10\sqrt{2}\,\text{cm}^2$ B. $16\sqrt{2}\,\text{cm}^2$ C. $20\sqrt{2}\,\text{cm}^2$ D. 20cm^2

5: Diameter AB intersects chord CD at X. If angle AXC = 86° and arc AD = 80°, what is the measure of arc BC?

A. 72° B. 94° C. 100° D. 108°

6: What is the measure of angle ABC for coordinates A (-8,2) B(-3, 6) C(9,1) ?

A. 61.3° B. 74.0° C. 117.6° D. 118.7°

Name_____ Period _____

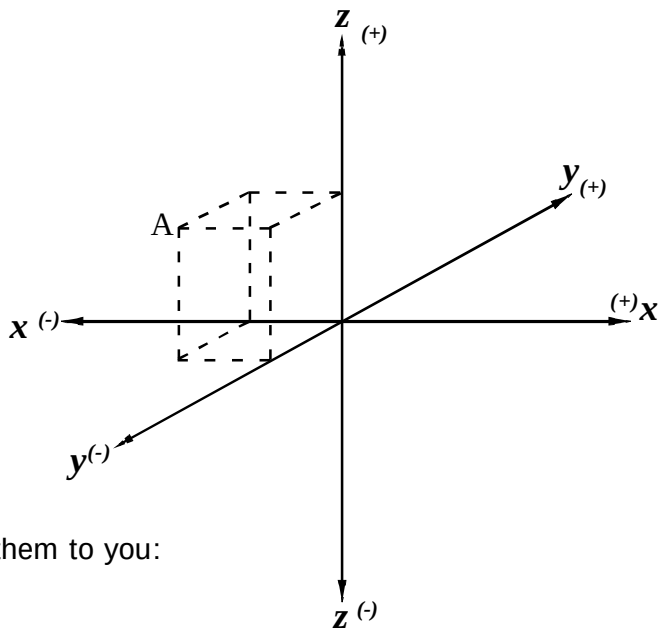
3d Coordinate Geometry

Geometry EOC

For three-dimensional graphing, a z-axis is added.
The z-axis is usually shown vertically.
Points are named by their coordinates (x,y,z).

Which of these could be the coordinates of point A?
(-3,-4,-5) (3,-4,-5) (3, 4,-5) (-3,-4, 5)

The x and y axis are often laid out differently, look carefully at the way the axis are labeled when solving problems like these.



The distance and midpoint formulas work exactly the same in three dimensions as in 2d graphing.

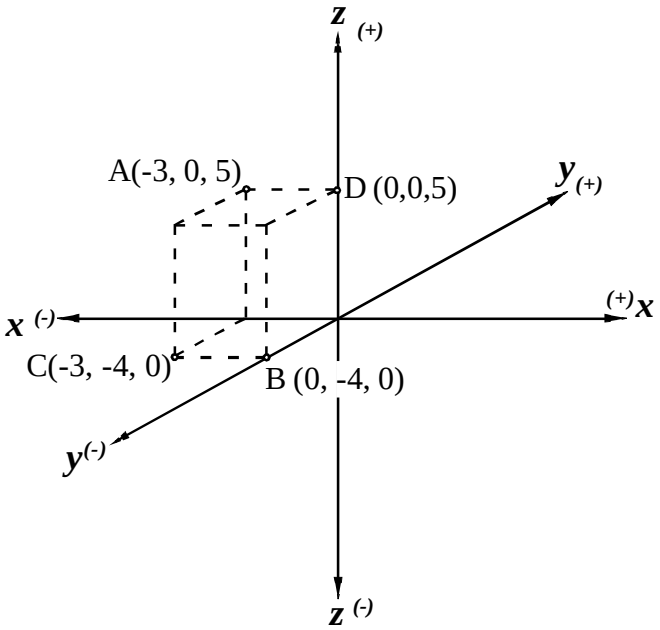
Try to guess/figure out each formula before I give them to you:

Midpoint of (x_1, y_1, z_1) and (x_2, y_2, z_2) =

_____

Distance from (x_1, y_1, z_1) to (x_2, y_2, z_2) =

_____



Practice:

1. Find the coordinates of the intersection of AB and CD in the diagram to the right.

_____

2. Find the distance between points C and D in the diagram to the right.

_____

3. How far is (3, -4, 12) from the origin? _____units

4. How far is (-2, 7, -9) from (7, -5, 11)? _____units

5. Find the midpoint between (2, 4, -7) and (6, -11, 19): _____

6. The endpoints of a sphere's diameter are at (8, 3, -1) and (4, 5, 9). What is the volume of the sphere?

_____u^3

7. In parallelogram ABCD graphed on a three-dimensional coordinate plane, the diagonals intersect at (4, -2, -8). If A is located at (9, -7, 4), what are the coordinates of C?

_____