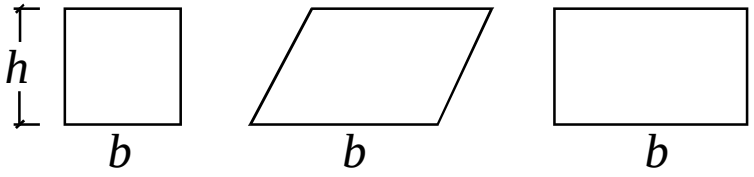
Area and Volume

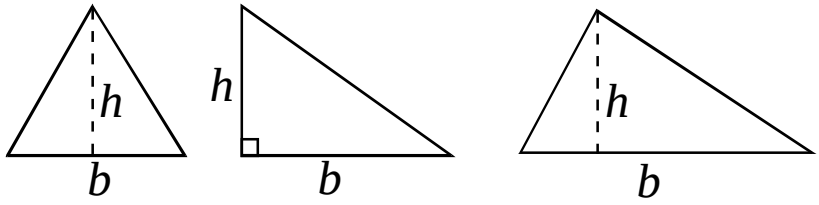
EOG REVIEW

Area Formulas:

$A = bh$

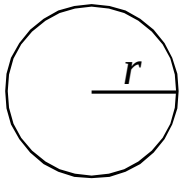


$A = \frac{1}{2}bh$



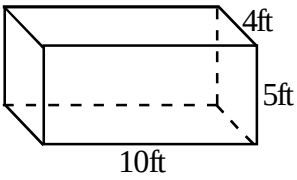
$A = \pi r^2$

$C = 2\pi r$

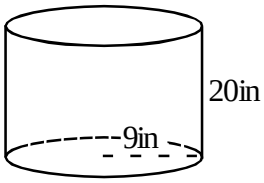


Volume: Prisms and Cylinders. $V = Bh$

Where B is the area of the base and h is the height.

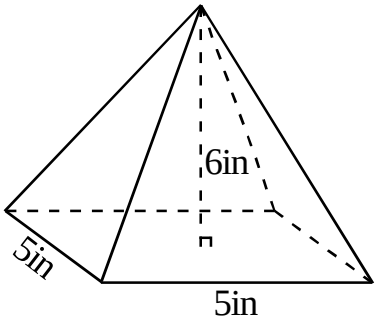


The base can be any of the six faces. We will use the 10 x 4 side. The volume is the area of the base times the height: (10 x 4) x 5 = 200ft³.



The base is a circle of area $\pi(9)^2 = 81\pi$.
Multiply this by the height to get $20(81\pi) = 1620\pi$ in³.
As a decimal, this equals 5,089.4 in³, but we often leave answers in terms of pi to avoid rounding.

Volume: Pyramids and Cones. $V = \frac{1}{3}Bh$



The base is a square of area $5^2 = 25$ in².
Multiply this by 1/3 and the height to get:

$25 \cdot \frac{1}{3} \cdot 6 = 25 \cdot 2 = 50$ in³

Name_____ Period _____

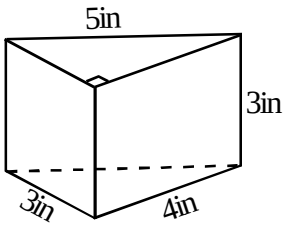
Area and Volume

EOG REVIEW

Find each volume:

Leave answers which involve circles in terms of pi.

1.



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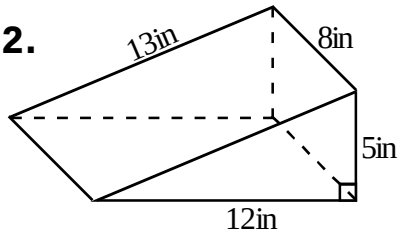

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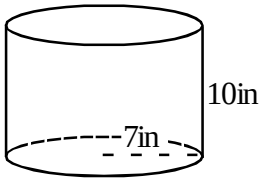

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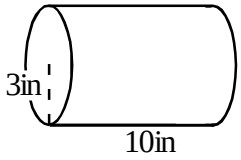

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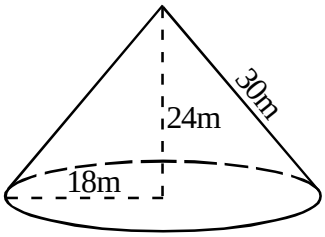

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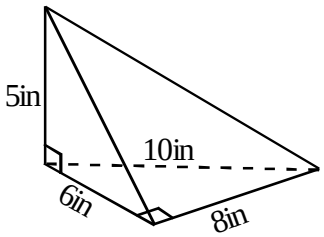

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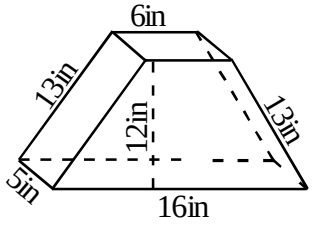
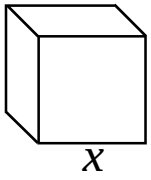


8. Find x in the cube if V=12cm^3. Round to the tenth.



***Trapezoid area:** $A = \frac{1}{2}h(b_1 + b_2)$

Four Formulas

EOG REVIEW

You must understand FOUR FORMULAS for Linear Equations on the EOG (and Algebra EOC):

Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$ **Standard Form:** $ax + by = c$

Slope-Intercept: $y = mx + b$ **Point-Slope:** $y - y_1 = m(x - x_1)$

Examples:
State the slope of each equation or pair of points:

1. $y = 2x - 5$ **2.** $3x - 5y = 15$ **3.** $(-1,3)(5,2)$

Practice:
State the slope of each equation or pair of points:

1. $y - 3 = -4(x - 5)$ **2.** $2x + 7y = -14$ **3.** $(5,-1)(-7,-3)$

Examples:
Write an equation in Standard Form using the information given:

1. Point: $(6,-1)$ **Slope:** -2 **2. Through** $(-3,4)$ **&** $(5,6)$

Practice:
Write an equation in Standard Form using the information given:

1. Point: $(10,-3)$ **Slope:** $-\frac{2}{5}$ **2. Through** $(5,-4)$ **&** $(2,-3)$

Linear Word Problems

EOG REVIEW

You must understand how Linear Equations relate to real-life situations in word problems.

Remember: y is dependent on x.

Example 1:
The cost of shipping a package is $2 plus an additional $0.45 per ounce. Which equation below represents the cost of shipping based on the weight of a package (w)?

$$f(w) = 0.45w + 2 \qquad f(w) = 2w + 0.45$$

Example 2:
The price of mulch delivery can be represented by the function:

$f(y) = 21.75y + 15.95$ where y is the number of cubic yards ordered.

1. What does the slope represent in this equation?
a. delivery charge **b.** price per cubic yard **c.** number of yards

2. What does the y-intercept in this equation represent?
a. delivery charge **b.** price per cubic yard **c.** number of yards

Practice:
Write an equation to represent each. Use function notation.

1. A restaurant delivers pizzas for $8.95 each plus a $4 charge for delivery.

2. A nanny service will send a nanny to your home for an initial charge of $20, and the nanny fee is $17 per hour.

3. Scientists are studying a particular dinosaur which they believe weighed 25 pounds at birth and grew about 3 pounds per week.

Inequalities:
1. Ryan has only $20 to spend on gas for $3.65 a gallon and he wants a bag of chips that cost $1.50. Write an inequality to represent the number of gallons of gas he can purchase.

2. Phillip has two hours before he needs to leave for a soccer game and he has math and science homework to get done. He has 18 science questions and 10 math problems. Write an inequality to represent how many minutes he can average on each math problem (m) and science problem (s).

Tables and Equations

EOG REVIEW

Function Tables

Examples: Sometimes it is easy to write a function based on a table of values. Match each function with the table of values it describes:

1.

x	f(x)
5	-9
3	-5
-1	3

2.

x	f(x)
9	-5
3	-9
-9	-17

3.

f(x)	x
8	4
0	0
-4	-2

a. $f(x)=2x-1$ **b.** $f(x)=\frac{2}{3}x-11$ **c.** $f(x)=-2x+1$ **d.** $f(x)=2x$

It is not always so simple.

Ex. Try to write a function to represent the data below in slope-intercept form:

x	15.9	21.4	24.3	31.9	19.1
f(x)	163.9	230.2	263.8	340.1	207.3

Practice: Write a function to represent the data below in slope-intercept form:

x	8.2	13.0	43.1	9.2	17.1
f(x)	21.5	32.7	84.9	23.4	43.8

Dependent / Independent: It is also important to be able to recognize the dependent and independent variables in a table. Otherwise your equation will be backwards. In the list, be sure to list x-values in L_1 and y-values (dependent) in L_2.

Practice: Write a function equation for the cost of a phone call based on the number of minutes you talk.

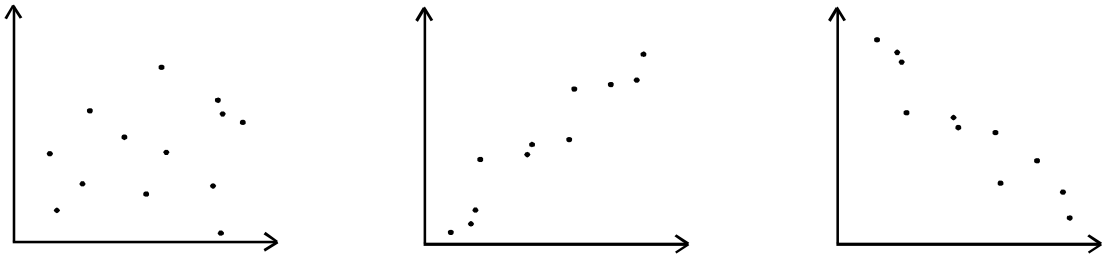
Cost	1.29	2.58	1.59	0.72	4.50
Minutes	14	35.5	19	4.5	67.5

Reading Scatter Plots

EOG REVIEW

Correlation:

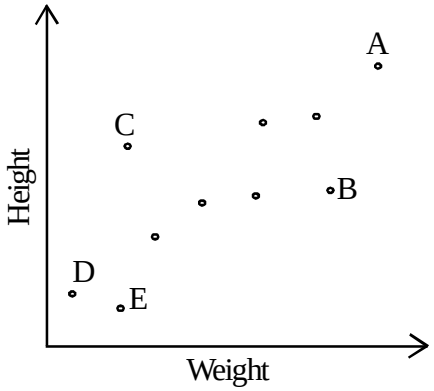
What is the correlation shown for each scatter plot below?



Recognizing Points:

The scatter plot below shows the height and weight of 12 dogs.

1. Which dog is the heaviest?
2. Which dog is the probably the skinniest?
3. Which dog is the shortest?
4. Which dog is probably the fattest?
5. Label the:
   - Greyhound
   - Great Dane
   - Miniature Daschund (weiner dog)
   - Chihuahua
   - Bulldog



Predict:

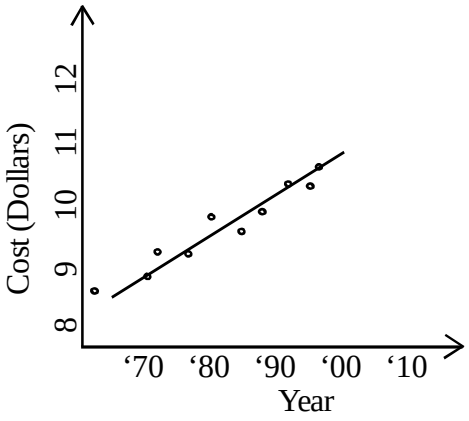
You should be able to make general predictions using a line of best fit:

What is the approximate slope of the line of best fit?

a. 0.06 **b.** 0.10 **c.** 0.25 **d.** 0.50

What is the best approximation for the cost in 2010?

a. 10.50 **b.** 11.00 **c.** 11.50 **d.** 12.00



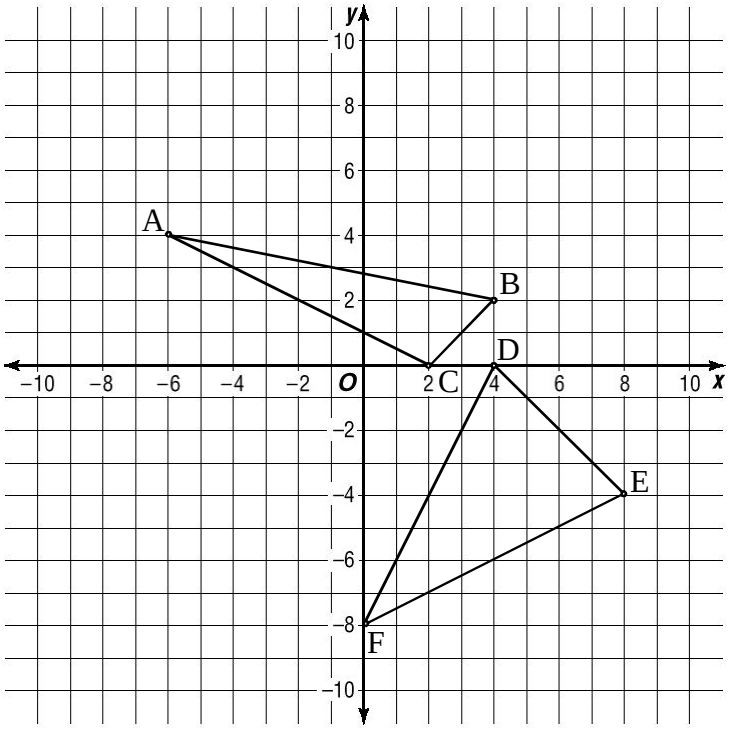
Review: Dilations on the Plane

EOG REVIEW

It is easy to create a dilation on the coordinate plane. Multiply the coordinates of the original figure by a given scale factor.

Ex.
What would be the coordinates of triangle ABC after a dilation with a scale factor of 2.5?

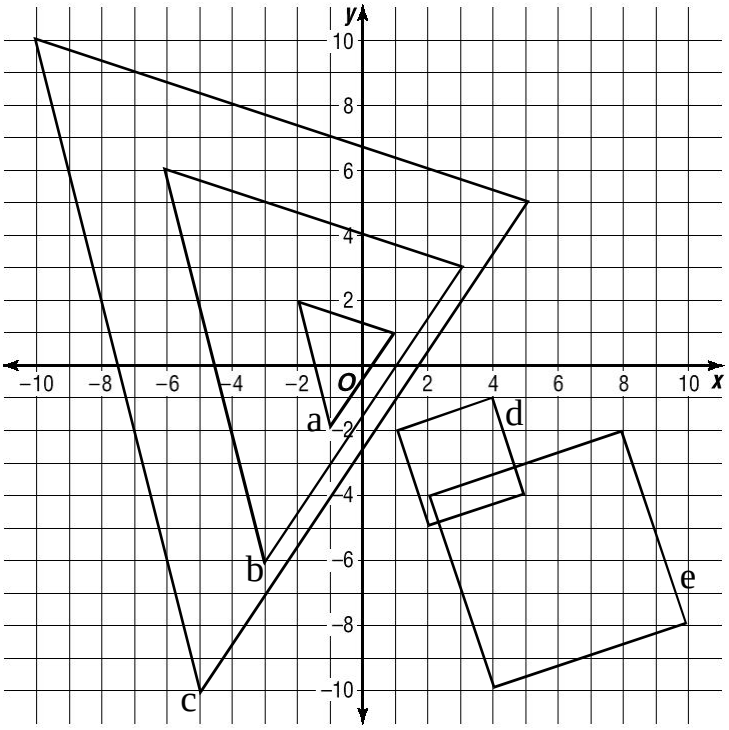
A'_____ B'_____ C'_____



Practice:
What would be the coordinates of triangle DEF after a dilation with a scale factor of 3/4?

D'_____ E'_____ F'_____

Ex.
What scale factor was used to dilate triangle a into triange b?



Practice:
State the scale factor for each dilation:

a to c _____

d to e _____

e to d _____

c to b _____

Formulas

EOG REVIEW

On the EOG you will often be asked to use a formula that you are not familiar with and then solve for a given variable. This is another case where you can PLUG-IN values and solve like any other equation.

Review: Solve for x in each.

a. $7 = 2x - 1$ **b.** $14 = \frac{5x}{3} - 11$ **c.** $3 = \frac{5(x+1)}{2}$

EOG Example:

The formula $A = \frac{abc}{4R}$ can be used to find the area (A) of a triangle, where a, b, and c are the side lengths of the triangle and R is the circumradius of the triangle. If a=3, b=7, and R = 4, find the length of the missing side c for a triangle with an area of 10cm^2. Round your answer to the tenth.

A. 7.1 **B.** 7.6 **C.** 8.2 **D.** 13.1

Practice:

1. The formula used to convert from Celsius degrees to Fahrenheit is $F = \frac{9}{5}C + 32$. What is the temperature in Celsius when it is 86 degrees Fahrenheit?

A. 29^o **B.** 30^o **C.** 31^o **D.** 32^o

2. The formula used to determine the surface area of a cone is $A = \pi r^2 + \pi rs$, where s represents the slant height of the cone. What is the slant height of a cone whose surface area is 96π cm^2 and whose radius is 6cm?

A. 7cm **B.** 8cm **C.** 9cm **D.** 10cm

Name_____ Period _____

5 Things…

EOG REVIEW

…you had better know by tomorrow.

Square Roots and the Pythagorean Theorem.

1. Approximate the side length of a square whose area is $20cm^2$.

a. 4.5cm **b.** 4.9cm **c.** 5cm **d.** 10cm

1._____

2. Which of the following displays three values in order from least to greatest?

a. $\sqrt{5}, 2.\overline{2}, \frac{7}{3}$ **b.** $\sqrt{5}, \frac{7}{3}, 2.\overline{2}$ **c.** $2.\overline{2}, \sqrt{5}, \frac{7}{3}$ **d.** $\frac{7}{3}, \sqrt{5}, 2.\overline{2}$

2._____

3. What is the best approximation for the height reached by a ladder that is 40 feet long and placed 10 feet from the base of the wall it is leaning against?

a. 38.7 feet **b.** 40.1 feet **c.** 41.2 feet **d.** 50 feet

3._____

Changing Dimensions

1. The radius of a circle is tripled, and the area of the new circle is $72cm^2$. What was the area of the original circle?

a. $8cm^2$ **b.** $9cm^2$ **c.** $12cm^2$ **d.** $24cm^2$

1._____

2. The length, width, and height of a rectangular prism are each increased by 50%. By what percent is the volume of the prism increased?

a. 125% **b.** 150% **c.** 237.5% **d.** 337.5%

2._____

3. The diameter of a can is 5cm and its height is 4cm. If the can's diameter is increased to 6cm but the height is left unchanged, how many more cubic centimeters will the new can hold than the original?

a. $34.6cm^2$ **b.** $35.6cm^2$ **c.** $36.6cm^2$ **d.** $37.6cm^2$

3._____

Dilations

Didn't finish… copied 8 pages of DPI scatterplots instead…

1._____