

Monday, May 15

**No calculators!**

EOG Calculator Inactive

1. Solve for x:  $x^3 - 15 = 328$  (without a calculator)

$$\begin{array}{r} +\sqrt[3]{15} \\ \hline x^3 = 343 \\ x = 7 \end{array}$$

2. What is the slope of a line that passes through points  $(-2, 7)$  and  $(-5, 10)$ ?

$$\begin{array}{l} \text{Slope} = \frac{y_2 - y_1}{x_2 - x_1} \\ = \frac{10 - 7}{-5 - (-2)} \\ = \frac{3}{-5 + 2} \\ = \frac{3}{-3} \\ = -1 \end{array}$$

check

HW

1. Approximate  $\sqrt{39}$  to the nearest whole number.

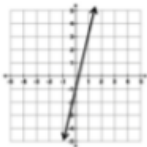
6

2. What is the initial value of the function in the table?

Hours	0	2	4
Total (\$)	20	30	40

20

3. What is the slope of the graph?



4

4. Solve the equation:

$4(x - 2) = 3x - 6$

2

5. How many solutions does this system of equations have?

$$\begin{array}{l} y = 6x + 3 \\ y = 7x + 3 + 1 \end{array}$$

0

6. How many solutions does this equation have?

$-5x + x + 5 = 2(-2x + 2) + 1$

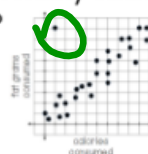
infinite

7. What is the scale factor of the dilation from figure A to figure B?

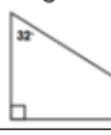
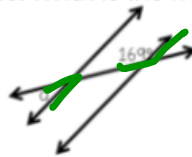



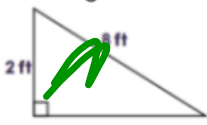
1/2

8. How many outliers does this scatter have?



1

<p><b>9.</b> How many are in choir and pep club?</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th></th> <th style="text-align: center;">In choir</th> <th style="text-align: center;">Not in choir</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">In pep club</td> <td style="text-align: center; border: 2px solid green;">6</td> <td style="text-align: center;">8</td> </tr> <tr> <td style="text-align: center;">Not in pep club</td> <td style="text-align: center;">7</td> <td style="text-align: center;">6</td> </tr> </tbody> </table> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">6</div>		In choir	Not in choir	In pep club	6	8	Not in pep club	7	6	<p><b>10.</b> What is the slope in the equation <math>y = x - 4</math>?</p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">1</div>
	In choir	Not in choir								
In pep club	6	8								
Not in pep club	7	6								
<p><b>11.</b> Simplify <math>w^2 \cdot w^5 = w^?</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">7</div>	<p><b>12.</b> What is the rate of change of the function in the table?</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-bottom: 10px;"> <thead> <tr> <th>minutes</th> <th>0</th> <th>2</th> <th>4</th> </tr> </thead> <tbody> <tr> <td>feet</td> <td>15</td> <td>21</td> <td>27</td> </tr> </tbody> </table> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">3</div>	minutes	0	2	4	feet	15	21	27	
minutes	0	2	4							
feet	15	21	27							
<p><b>13.</b> What is the height of a cylinder with a radius of 2 inches and a volume of about 188.4 cubic inches? Use <math>\pi \approx 3.14</math>.</p> <p style="color: green; font-size: 1.2em;"><math>V = \pi r^2 h</math>  <math>188.4 = 3.14(2)^2 h</math>  <math>188.4 = 12.56h</math>  <math>15</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">15</div>	<p><b>14.</b> What is the measure of the missing angle?</p>  <p style="color: green; font-size: 1.2em;"><math>180 - 32 - 90 = 58</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">58</div>									
<p><b>15.</b> What is the value of x? <math>25 = x^2</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">5</div> <p style="color: green; font-size: 1.2em; margin-left: 100px;">-5</p>	<p><b>16.</b> What is the measure of angle a?</p>  <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">11</div>									

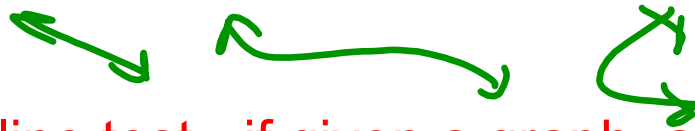
<p><b>17.</b> Write <math>6.5 \times 10^2</math> in standard form.</p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">650</div>	<p><b>18.</b> What is the y-intercept in the equation <math>y = 3x - 5</math>?</p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">-5</div>
<p><b>19.</b> Given the linear model <math>y = 35x - 250</math>, where x is the number of items sold and y is the total profit (in dollars), determine the total profit when 9 items are sold.</p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">65</div>	<p><b>20.</b> How many times greater is <math>2.8 \times 10^5</math> than <math>4 \times 10^4</math>?</p> <p style="color: green; font-size: 1.2em;"><math>\frac{2.8 \times 10^5}{4 \times 10^4} = 7</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">7</div>
<p><b>21.</b> This figure was rotated _____ degrees.</p>  <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">90</div>	<p><b>22.</b> Which number is rational? <math>\sqrt{28}</math>, <math>\pi</math>, 2.33333..., <math>\sqrt{60}</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">2.33...</div>
<p><b>23.</b> What is the approximate length of the missing side?</p>  <p style="color: green; font-size: 1.2em;"><math>a^2 + b^2 = c^2</math>  <math>2^2 + 3^2 = c^2</math>  <math>4 + 9 = c^2</math>  <math>13 = c^2</math>  <math>c \approx 3.6</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">7.7</div>	<p><b>24.</b> What is the cube root of 64?</p> <p style="color: green; font-size: 1.2em;"><math>4 \cdot 4 \cdot 4 = 64</math></p> <div style="text-align: right; border: 1px solid red; width: 40px; height: 25px; display: flex; align-items: center; justify-content: center; margin-left: auto;">4</div>

# FUNctions

## EOG Review

What is a function?

For each x-coordinate, there is only one y-coordinate or all your x-values are different (if x-values repeat, then it has to have the same y-value)



Vertical line test - if given a graph, a vertical line can only go through one point to be a function

## We Do

In which choice is  $y$  a function of  $x$ ?

- A  $(1, 3), (3, 4), (4, 5), (5, 6)$
- B  $(2, 0), (2, 3), (4, 5), (6, 7)$
- C  $(2, 5), (4, 8), (6, 10), (2, 12)$
- D  $(6, 2), (4, 1), (6, 8), (8, 10)$

## You Do on Pear Deck or whiteboard

In which set of points is  $y$  a function of  $x$ ?

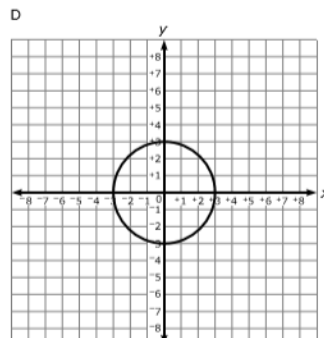
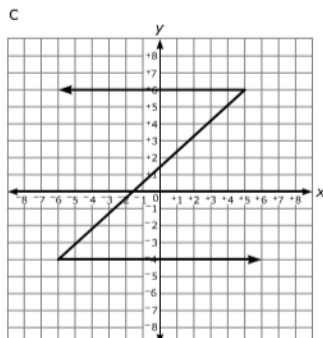
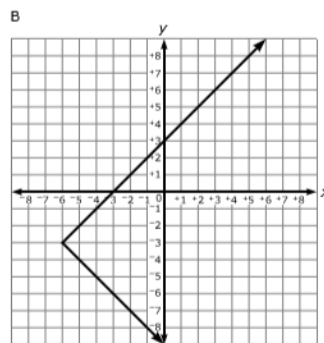
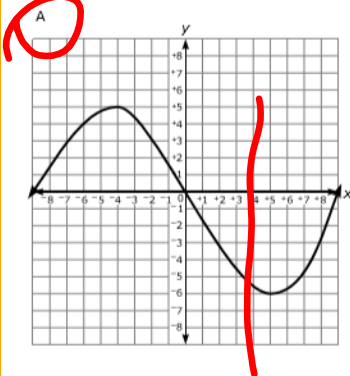
- A  $\{(-1, -2), (0, 1), (1, 1), (1, 2)\}$
- B  $\{(-1, 2), (0, 1), (1, 2), (-1, 1)\}$
- C  $\{\underline{(-2, -1)}, \underline{(0, 1)}, \underline{(1, 0)}, \underline{(2, 1)}\}$
- D  $\{(-2, -2), (-1, 1), (0, 1), (-1, -1)\}$

You Do

In which set of points is  $y$  a function of  $x$ ?

- A  $\{(2, 4), (4, 16), (5, 25), (6, 36)\}$
- B  $\{(4, 2), (4, -2), (16, 4), (16, -4)\}$
- C  $\{(2, 1), (2, 0), (1, -1), (3, 1)\}$
- D  $\{(2, 3), (1, 3), (0, 3), (0, 2)\}$

23 In which graph is  $y$  a function of  $x$ ?



You Do

# You Do

A table with missing values is shown.

$x$	$y$
7	10
3	7
? <b>2</b>	?
1	5
9	12

A. (1, 8)

B. (2, 7)

C. (7, 4)

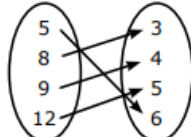
D. (9, 6)

Which ordered pair would make the data in the table a function?

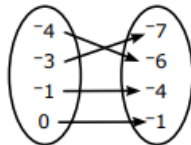
# You Do

4 Which choice is not a function?

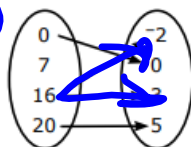
A



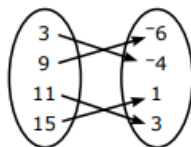
B



**C**



D



**(5, 6) (8, 3) (9, 4) (12, 5)**

You  
do

3 In which table is y not a function of x?

A

x	y
3	6
4	5
5	6
7	5

B

x	y
3	1
4	8
5	1
5	8

C

x	y
5	6
4	6
1	6
1	6

D

x	y
4	4
6	8
8	6
4	4

To be a linear function - all x-coordinates must be different and there must be a constant rate of change (same slope)

If it's calculator active, you can graph points or a table in Desmos to see if it's a function and if it's linear or non-linear

## We do

In which choice do all three points lie on the same straight line?

A ~~(0, 1), (-1, 3), (1, 3)~~

B ~~(4, 2), (2, 1), (4, -2)~~

C ~~(0, 0), (8, 0), (0, 8)~~

D (1, 2), (2, 4), (4, 8)

$$\frac{2}{1} = \frac{4}{2}$$

## You do on Pear Deck or whiteboard

In which choice is  $y$  a nonlinear function of  $x$ ?

~~X~~

$x$	0	2	4	6	8
$y$	24	18	12	6	0

~~B~~

$x$	0	2	4	6	8
$y$	24	18	13	9	6

C

$x$	0	2	4	6	8
$y$	24	21	18	15	12

D

$x$	0	2	4	6	8
$y$	24	22	20	18	16



You Do

2 In which table is  $y$  a linear function of  $x$ ?

A

$x$	0	1	4	5	8
$y$	0	-5	-6	-9	-12

B

$x$	0	1	2	3	4
$y$	0	7	12	15	16

**C**

$x$	-1	0	1	2	3
$y$	6	8	10	12	14

D

$x$	1	2	3	4	5
$y$	32	16	8	4	2

Handwritten red annotations: Brackets above table C showing a constant slope of 2. Brackets below table D showing a constant slope of -2.

You do

Which table is a linear function?

**A**

Input	2	5	9	11
Output	7	16	28	34

B

Input	1	2	3	7
Output	1	4	16	49

C

Input	2	4	5	16
Output	1	13	22	33

D

Input	1	2	4	7
Output	2	10	26	65

Handwritten red annotations: Brackets above table A showing a constant slope of 3. Brackets below table B showing a constant slope of 3.

Handwritten green annotations: Vertical calculations for each table. For A:  $9/3=3$ ,  $12/4=3$ ,  $16/6=3$ . For B:  $3/1=3$ ,  $7/2=3.5$ ,  $12/3=4$ . For C:  $3/2=1.5$ ,  $12/4=3$ ,  $16/6=2.67$ . For D:  $3/1=3$ ,  $12/2=6$ ,  $16/4=4$ .

## Non-linear Equations

- exponents with variables  $y=x^2+1$
- x in the denominator  $y = \frac{3}{x}$
- x in any root symbol  $y = \sqrt[3]{x}$

If it's calculator active, graph the equations to see what is linear or non-linear, non-linear will not be straight

Note: Some non-linear graphs are functions and some are not.

The only line that is NOT a function is a vertical line

## We Do

5 In which equation is  $y$  a nonlinear function of  $x$ ?

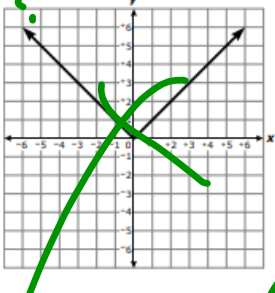
A  $y = 2x - 4$

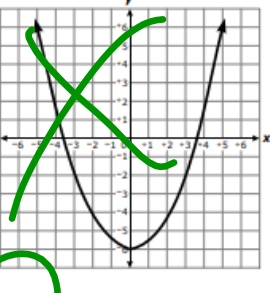
B  $y = \sqrt{x}$

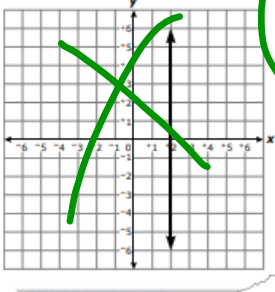
C  $y = \frac{8 - 2x}{3}$

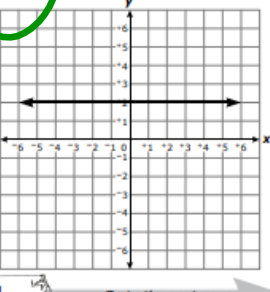
D  $y = \frac{x - 9}{3} + 2x$


1 In which graph is  $y$  a linear function of  $x$ ?

A 

B 

C 

D 

DO NOT REPRODUCE  1 Go to the next page.

You do on Pear Deck or white board

## You Do

22 In which equation is  $y$  a nonlinear function of  $x$ ?

A  $y = \frac{2}{3}x + 7$

B  $y = 2x$

C  $y = 3x + 2$

D  $y = \frac{3}{x}$

## You Do

In which choice is  $y$  a nonlinear function of  $x$ ?

A  $y = \frac{x}{4} + 5$  L

B  $y = 10 + x$  L

C  $y = \frac{x+3}{4} - 2x$  L

D  $y = \frac{2}{x-3} - 5$

Complete EOG ALEKS Review by Friday 5/19