

Name Key
Mrs. Roubos

Date _____
8R Period _____

Classwork Day 5

1. Which of the following equations is non-linear?

1) $y = x + 6$

2) $y = 4x + 10$

3) $y = x^2 + 4$

4) $y = 5x$

Def: a non-linear equation is an equation where the exponent of the variable is not 1 or 0

2. Does the following relations represent a function? : $\{(2,6), (2,7), (4,5)\}$

No! It is not a function B/c the x-value of 2 repeats

Def: function: x-values DON'T repeat

3. What is the volume of a cylinder whose radius is 3 and whose height is 8? Round to the nearest hundredth.

$V = \pi r^2 h$



$V = \pi r^2 h$

$V = \pi \cdot (3)^2 \cdot 8$

$V = \pi \cdot 9 \cdot 8$

$V = 226.19 \text{ in}^3$

Use π button on the calculator

**Steps: Plug the values into the formula + simplify. Round to the nearest hundredth

4. In terms of π , what is the volume of a sphere with a radius of 4 inches? $V = \frac{4}{3}\pi^3$

* Must have π in your answer
* Don't multiply by π

$V = \frac{4}{3} \pi r^3$

$V = \frac{4}{3} \cdot \pi \cdot (4)^3$

$V = \frac{4}{3} \cdot \pi \cdot 64$

$V = 85\frac{1}{3}\pi$



**Steps: Plug the values into the formula + then simplify. Don't multiply by π .

5. Find the volume, to the nearest cubic inch, of a cone with a radius of 6 and a height of 8.

Nearest whole #

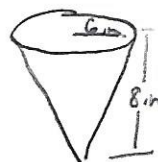
$V = \frac{1}{3} \pi r^2 h$

$V = \frac{1}{3} \cdot \pi \cdot (6)^2 \cdot 8$

$V = \frac{1}{3} \cdot \pi \cdot 36 \cdot 8$

$V = 302 \text{ in}^3$

$V = \frac{1}{3} \pi r^2 h$



Use π button on the calculator

**Steps: Plug the values into the formula + simplify. Round to the nearest whole #

6. Solve $\sqrt[3]{a^3} = 125$
 $a = 5$
 $\sqrt[3]{125} = 5$ b/c $5 \cdot 5 \cdot 5 = 125$
 Calc: [3] [2nd] [∛] [125] [=]

**Steps: Take the cube root of each side of the equal sign

7. Given an example of a number that is a perfect square?

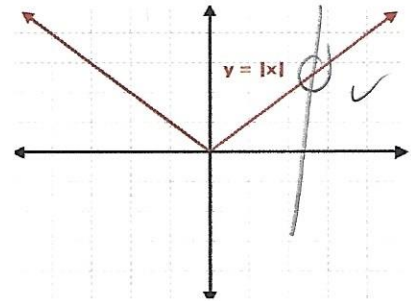
0, 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225

check: $\sqrt{225} = 15$ ✓
 you get a whole #

Def: P.S. = the product of a # times itself
 **Steps:

8. Does the following graph represent a function?

Yes it is a function b/c
 it passes the vertical line test



**Steps: It passes the vertical line test b/c the vertical line only goes through the graph once.

9. Does the following table represent a function?

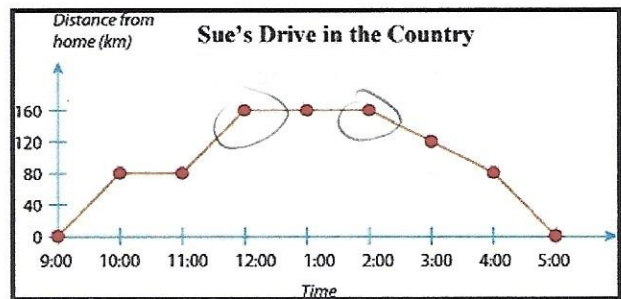
Yes it is a function b/c NONE of the x-values repeat

x	y
1	2
2	4
3	6
4	8
5	10

**Steps: Function: the x-values don't repeat

10. What did Sue do between 12-2 pm?

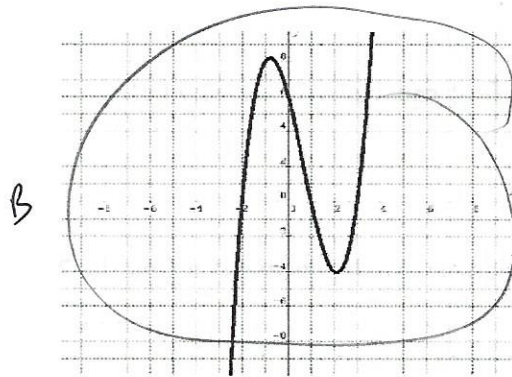
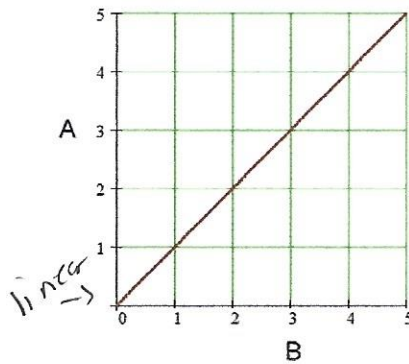
She took a break / stopped driving



**Steps: A horizontal line when given distance and time means a stop in movement, not a stop in time.

11. Which of the following graphs is non-linear?

NOT a straight line



**Steps: NON-linear means not a straight line

Now you try!

12. Which of the following equations is non-linear?

- 1) $y = x^2 + 2$ *B/c the exponent is not 1* 3) $y = x + 4$
 2) $y = 8$ or 0 4) $y = 5x + 12$

13. Does the following relations represent a function? : $\{(1,7), (5,9), (2,7)\}$

Yes! it is a function *B/c none of the x-values repeat*

14. What is the volume of the cylinder whose radius is 5 and whose height is 12? Round to the nearest hundredth.



$$V = \pi r^2 h$$

$$V = \pi \cdot (5)^2 \cdot 12$$

$$V = 942.48$$

use the π button on the calculator

15. In terms of π , what is the volume of a sphere with a radius of 7 inches?

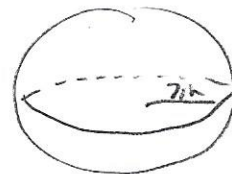
• must have π in your answer
 • Don't multiply by π

$$V = \frac{4}{3} \pi r^3$$

$$V = \frac{4}{3} \cdot \pi \cdot (7)^3$$

$$V = \left(\frac{4}{3}\right) \cdot \pi \cdot 343$$

$$V = 457 \frac{1}{3} \pi \text{ in}^3$$



16. Find the volume, to the nearest cubic inch, of a cone with a radius of 3 and a height of 9.

nearest whole #

$$V = \frac{1}{3} \pi r^2 h$$

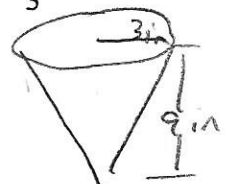
$$V = \frac{1}{3} \cdot \pi \cdot 3^2 \cdot 9$$

$$V = \frac{1}{3} \cdot \pi \cdot 9 \cdot 9$$

$$V = 85 \text{ in}^3$$

use the π button on the calculator

$$V = \frac{1}{3} \pi r^2 h$$



17. Solve $a^3 = 8$
 $a = 2$

$3 \times 2^{nd} \times 1 \times 8 =$

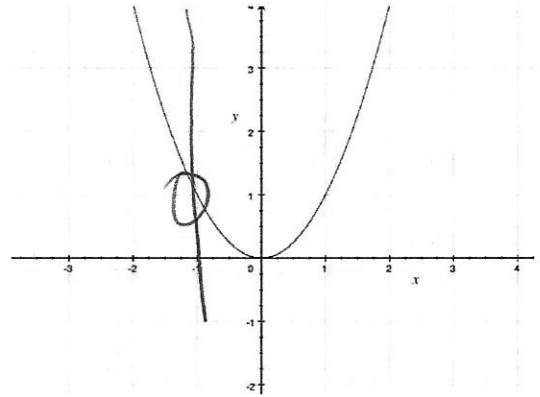
18. Is 225 a perfect square? Why or why not

Yes it is a p.s. B/c $15^2 = 225$

$\rightarrow 2^{nd} (x^2)$
 $\sqrt{225} = 15 \checkmark$ yes B/c it is a whole #

19. Does the following graph represent a function?

Yes it is a function
 B/c A vertical line only goes through this graph once
 (non-linear)



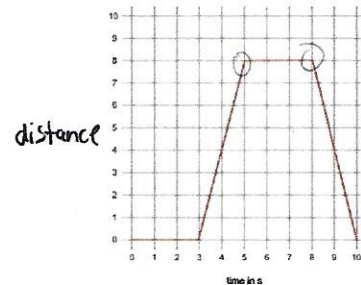
20. Does the following table represent a function?

NO! It is not a function
 B/c the x-values of 8 repeats

x	y
2	1
8	2
4	7
6	5
8	9

21. What happened between 5 & 8 seconds?

took a break/stopped



22. Is the following graph linear or non-linear?

NON-linear B/c it is not a straight line

