Warm- Up

1. $(x^2 + 5x) + (10 + (3x + 40)$

$x^2 - 9x - 30$

2. $(x + 5)(x - 5)$

$x^2 - 25$

3. Factor: $x^2 + 8x + 15$

$(x+3)(x+5)$

4. Solve for x: $5x - 15 = 25$

$5x = 40 \quad x = 8$

5. $\frac{2x}{3} = 4.3 \quad 2x = 12 \quad x = 6$

	x	5
x	x^2	$5x$
-5	$-5x$	-25

a·c

15

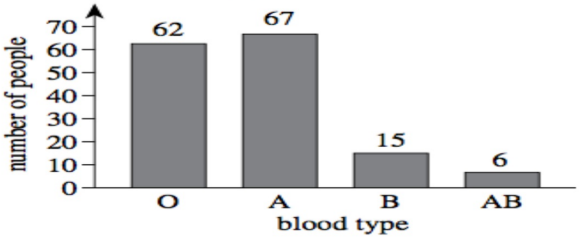
3 5

8

b

ACT Question of the Day

1. The blood types of 150 people were determined for a study as shown in the figure below.



If 1 person from this study is randomly selected, what is the probability that this person has either Type A or Type AB blood?

A. $\frac{62}{150}$

B. $\frac{66}{150}$

C. $\frac{68}{150}$

D. $\frac{73}{150}$

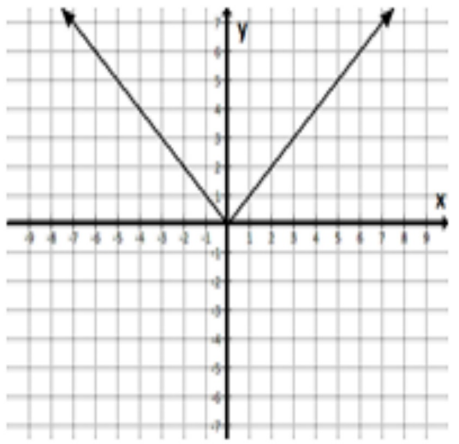
E. $\frac{84}{150}$

$\frac{67+6}{150} = \frac{73}{150}$

Unit 1 Part 1: Functions

Day 1: Parent Functions

- Linear
- Quadratic
- Cubic
- Absolute Value
- Rational / Inverse
- Square Root / Radical
- Exponential
- Logarithmic
- Cube Root

Parent Function	Graph
$y = \lvert x \rvert$ **Absolute Value**, Even Domain: $(-\infty, \infty)$ Range: $[0, \infty)$ V-shape doesn't go below 0 vertex at the origin	

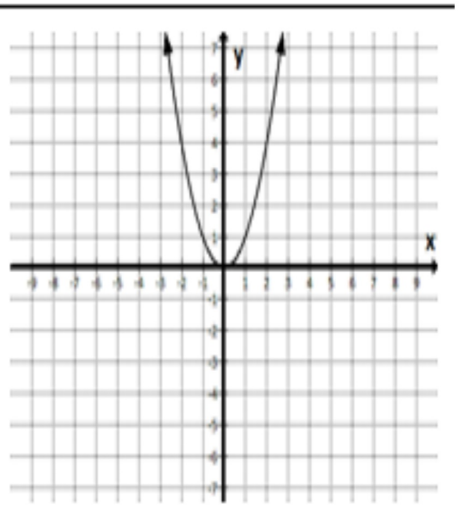
$y = x^2$

Quadratic, Even

Domain: $(-\infty, \infty)$

Range: $[0, \infty)$

U-shape
vertex is at the orgin.



$y = \sqrt{x}$

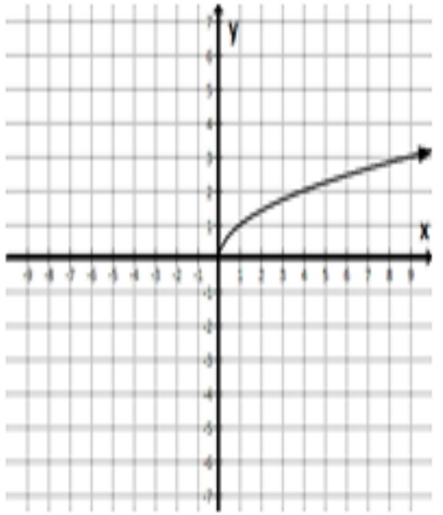
Radical, Neither

Square root

Domain: $[0, \infty)$

Range: $[0, \infty)$

graph is in quad 1
graph begins at the origin
graph increases.



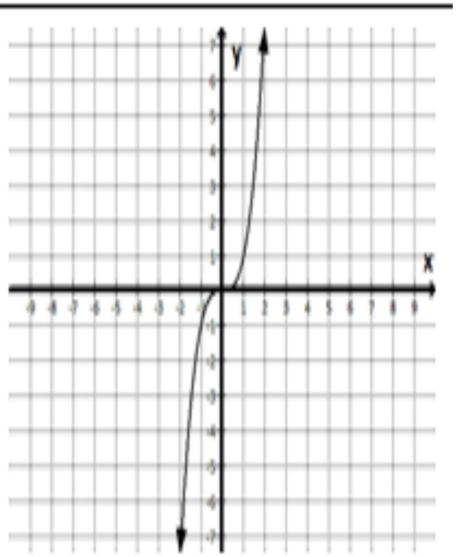
$y = x^3$

Cubic, Odd

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

quad 1 — pos/up
quad 3 — neg/down
Center of the graph is at the orgin



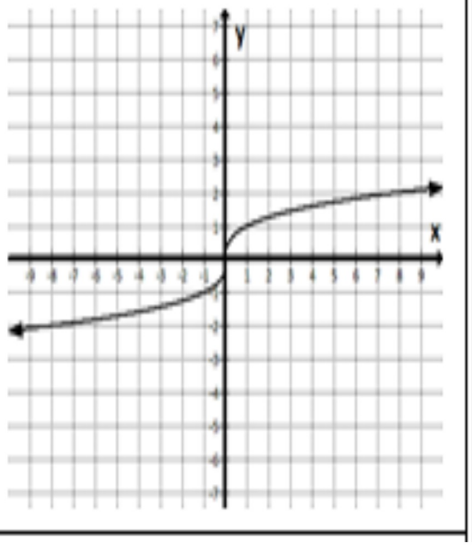
$y = \sqrt[3]{x}$

Cube Root, Odd

Domain: $(-\infty, \infty)$

Range: $(-\infty, \infty)$

center is at the orgin.
increase - quad 1 / right
decrease - quad 3 / left



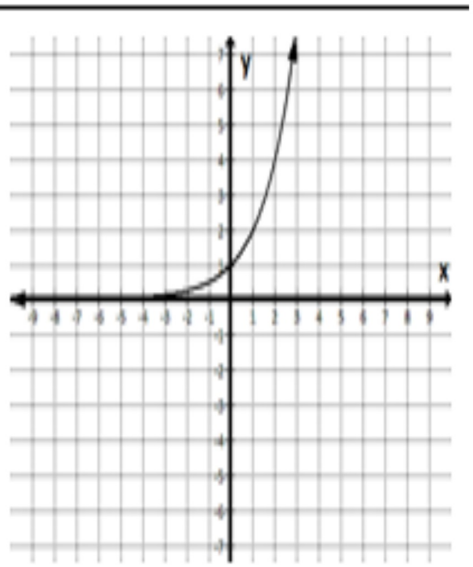
$y = b^x,\ b > 1$

Exponential, Neither

Domain: $(-\infty, \infty)$

Range: $(0, \infty)$

graph begins in quad 2 and increases



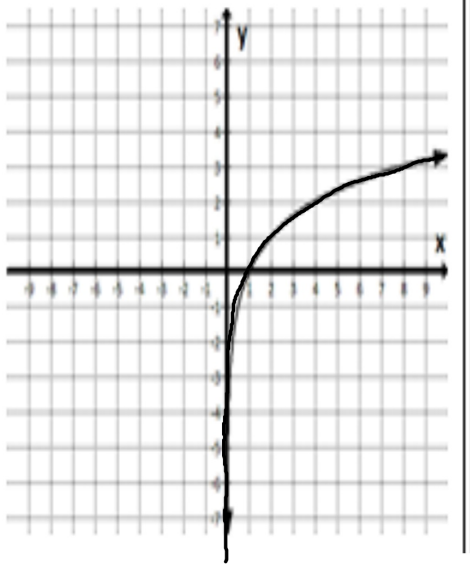
$y = \log_b(x),\ b > 1$

Log, Neither

Domain: $(0, \infty)$

Range: $(-\infty, \infty)$

graph begins in quad 4 increases into quad 1



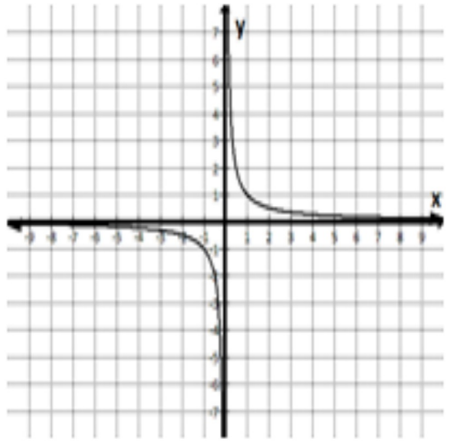
$y = \frac{1}{x}$

Rational (Inverse), Odd reciprocal

Domain: $(-\infty, 0) \cup (0, \infty)$

Range: $(-\infty, 0) \cup (0, \infty)$

2 graphs quad 1/3 never touches the orgin, bic we can't have a zero in the denominator x-is always in the denominator



purple- who is the most inspirtional person to you?

pink- which would you prefer, three wishes over 5 years or one wish right now?

red- what is the funniest moment in your life?

green- if you could invite five famous (past or present) to dinner who would you choose?