Name: Key Period: Date:

Final Review

EXPONENTS, FUNCTIONS and EQUATIONS

Exponents

1) The fraction: $\frac{16a^8b^7}{8a^8b^{11}}$, $a \neq 0$, $b \neq 0$, is equivalent to:

Top heavy bottom heavy

a) $2ab^4$ b) $\frac{2a}{b^4}$ c) $\frac{2}{b^4}$ d) $\frac{8}{b^4}$

Multiply

2) The product of $-5n^6$ and $3n^3$ is:

$-5n^6 \times 3n^3$

- Multiply coefficient
- Keep base
- add expo

a) $-2n^9$ b) $-8n^{18}$ c) $-15n^3$ d) $-15n^9$

3) Mercury is 57.9 million kilometers from the Sun. Earth is 1.496×10^8 kilometers from the Sun. In scientific notation, how **many more** kilometers is the Earth from the Sun then Mercury?

a) $.917 \times 10^8$ b) 9.17×10^7 c) 91.7×10^6 d) 91,700,000

57,900,000

1.496 0000 0
57900000
91700000

9.17×10^7

4) The speed of light as it reaches Earth is approximately 300,000,000 meters per second. How is this number written in scientific notation?

a) 3×10^5 b) 3×10^6 c) 3×10^7 d) 3×10^8

5) What is the value of 5^{-3}?

$\frac{1}{53} - \frac{1}{125}$

a) -15 b) -125 c) $-\frac{1}{125}$ d) $\frac{1}{125}$

6) When $(7x^{12}y^{-5})$ and $(2x^{-9}y^{8})$ ~~is~~ are multiplied

a) $9x^{21}y^{13}$ b) $9x^{3}y^{3}$ c) $14x^{-3}y^{-3}$ d) $14x^{3}y^{3}$

Functions

1) Mary would like to buy the new iPhone 6 Plus which costs $299. The phone company will give Mary $59 to trade in her old phone. If Mary has a steady weekly babysitting job in which she earns $40, which equation can be used to find the number of weeks, ***w***, it will take for Mary to save to her babysitting money to buy the new phone?

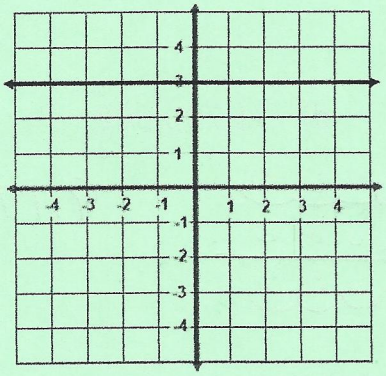
a) $w + 40 = 299$ b) $40(w + 59) = 299$

c) $40w - 59 = 299$ d) $40w + 59 = 299$

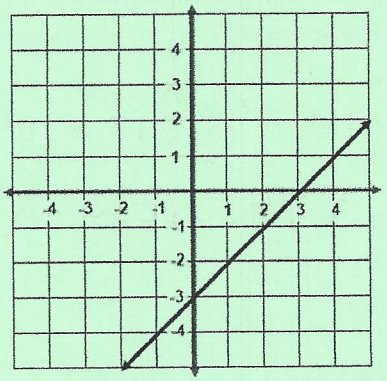
2) Which graph represents the function: $x = -2$

Vertical Line
NOT A function
Undefined

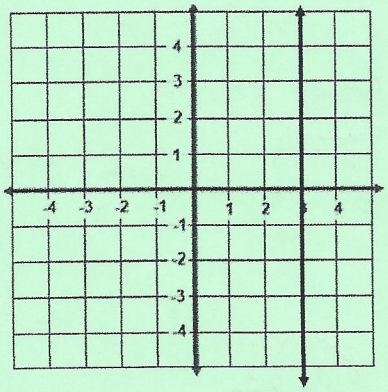
a)



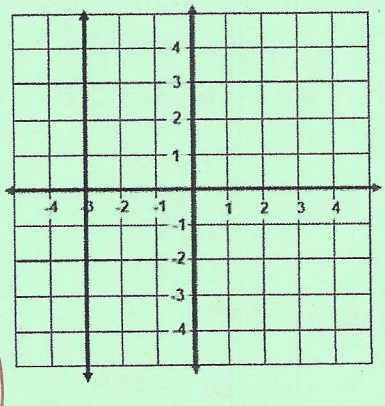
b)



c)



d)



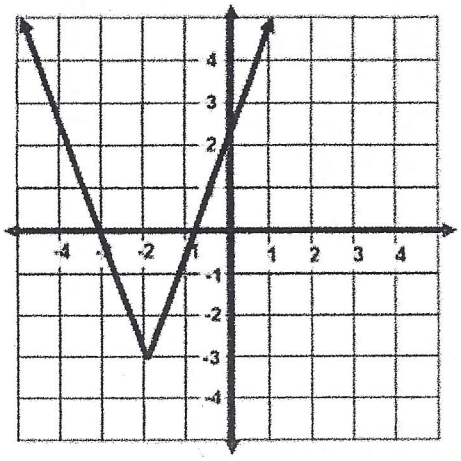
3) Which equation is NON-LINEAR?

a) $x^2y = 5$ b) $3x + 2y = 8$ c) $y = 6x + 4$ d) $y = 2$

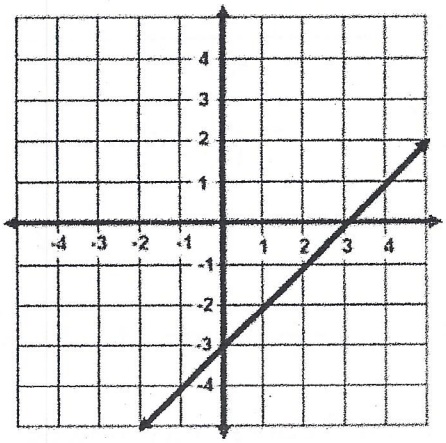
Vertical Line test

4) Which graph is **NOT** a function?

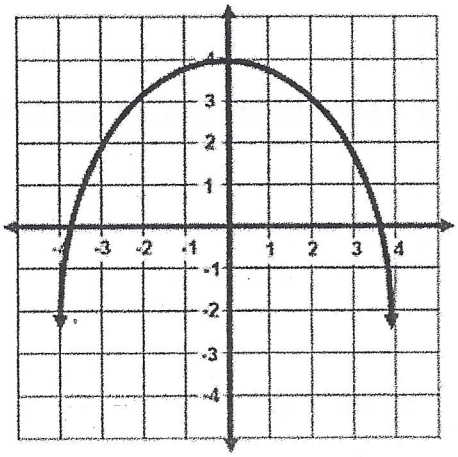
a)



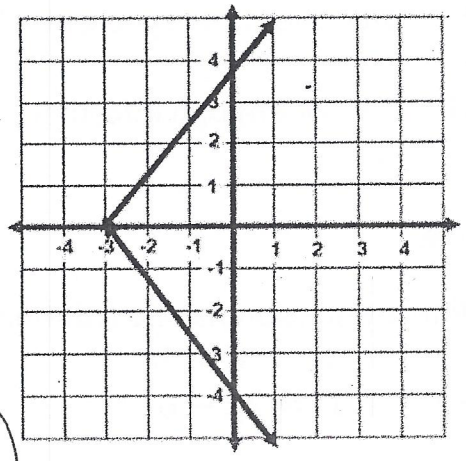
b)



c)



d)



5) Which relation **IS** a function? (2answers)

a) $\{(1,5), (1,6), (3,6), (4,7)\}$

b) $\{(0,5), (2,5), (3,5), (2,5)\}$

Same Point

Tricky!!

c) $\{(-1,5), (2,-1), (3,-1), (4,7)\}$

d) $\{(2,5), (2,6), (2,6), (2,7)\}$

6) Which statement is true about the following table of values:

x	y
-1	-1
3	-9
-2	1
0	3

+4 (-1 → 3) −8 ; +5 (-1 → -2) +10 ; +2 (-1 → 0) +2

$\frac{-8}{4}$ $\frac{10}{5}$ $\frac{2}{2}$

a. The data represents a function and the function is linear

b. The data represents a function but the function is NON-linear

c. The data does not represent a function

d. There is not enough information to determine if the data represents a function.

Equations

1) Which linear equation has **no** solution?

$-2x - 6 = 2x - 6$

a. $-2(x+3) = 2x - 6$

b. $5x + 8 = 5x - 8$

c. $2x + 18 = -2x - 18$

d. $4x - 6 = 4x - 6$

2) What is the value of x? $2(45 - x) = x + 12$

$90 - 2x = x + 12$

$-12 \quad +2x \quad +2x \quad -12$

$\frac{78}{3} = \frac{3x}{3}$

$26 = x$

a. 26

b. 31

c. 59

d. 61

Short Response

3) Solve for x. $6\left(\frac{1}{6}x\right)+6\left(\frac{5}{2}\right)=6(x)$

Multiply by common denominator.

(1) Clear Fraction method

$1x + 15 = 6x$

$-1x \qquad -1x$

$\frac{15}{5} = \frac{5x}{5}$

$3 = x$

(2) OR use calculator

$\frac{1}{6}x + \frac{5}{2} = 1x$

$\left(-\frac{1}{6}\right)x$

$-\frac{1}{6}x$

$+\left(\frac{5}{2}\right) = \left(\frac{5}{6}\right)x$

$\frac{\left(\frac{5}{6}\right)}{\left(\frac{5}{6}\right)} = \frac{\left(\frac{5}{6}\right)x}{\left(\frac{5}{6}\right)}$

$3 = 1x$

Be sure to set fraction aside in ( )