

Good luck on your exam.

Numbers  
Functions  
and  
Relations!!

Answers. NRF's.

C 1.  $m = \frac{y_2 - y_1}{x_2 - x_1}$   
 $= \frac{-4 - (-4)}{-4 - 2}$   
 $= \frac{-4 + 4}{-6}$   
 $= \frac{0}{-6}$   
 $= 0$

2.  $18x - 3y = -162$   $m = \frac{6}{1}$   
 $\frac{-3y}{-3} = \frac{-162}{-3} - \frac{18x}{-3}$

C  $y = 54 + 6x$   $y\text{-int } 54$

$$3. m = \frac{y_2 - y_1}{x_2 - x_1}$$

D

$$\frac{-2 - 3}{-2 - (-5)}$$

$$\frac{-5}{-2 + 5}$$

$$\frac{-5}{3}$$

4.  $\frac{1}{0}$  undefined  
A

5.  $4(x-3) + 2y = 8x + 2$   
 $4x - 12 + 2y = 8x + 2$   
 $2y = 8x - 4x + 2 + 12$   
 $2y = 4x + 14$   
 $y = 2x + 7$   
A

6.  $-8x - 6y = 3$

D  $\frac{-6y}{-6} = \frac{3 + 8x}{-6}$   
 $y = -\frac{1}{2} - \frac{4}{3}x$

$$7. \quad 5x + 2y = 2$$

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

D

$$y = 1 - \frac{5}{2}x$$

$$m = -\frac{5}{2} \perp + \frac{2}{5}$$

8.  $32x^4y^2 - 16xy^3 + 48x^5y^3$

A  $16xy^2(2x^3 - 1y + 3x^4y)$

B 9. Decomp.

10.  $144x^2 - 25$

D  $(12x - 5)(12x + 5)$

11.  $4x^2 + 5x - 6$        $- + - = 5$   
 $- x - = -24$

B  $4x^2 - 3x + 8x - 6$        $-1 \quad 24$   
 $-2 \quad 12$   
 $-3 \quad 8$   
 $-4 \quad 6$

$x(4x - 3) + 2(4x - 3)$

$(4x - 3)(x + 2)$

12.  $14a^2b^5c^3 - 21ab^3c^2 + 35ac^5$

C  $7ac^2(2ab^5c - 3b^3 + 5c^3)$

13.  $x^2 + 4x - 45$        $- + - = 4$

D  $(x-5)(x+9)$

$- x - = -45$   
 $\quad \quad \quad \wedge$   
 $\quad \quad \quad -1 \quad 45$   
 $\quad \quad \quad \textcircled{-5 \quad 9}$

14.  $2(2x-3y)(3x-y)$

$2(6x^2 - 2xy - 9xy + 3y^2)$

C  $12x^2 - 4xy - 18xy + 6y^2$

$12x^2 - 22xy + 6y^2$

15.  $3(x^2 - 2x - 1) + 3(5x - 4 - 2x^2)$

C  $3x^2 - 6x - 3 + 15x - 12 - 6x^2$   
 $-3x^2 + 9x - 15$

	Aliant	Rogers
16.	$26 + 0.02x$	40
A	$26 + 0.02(500)$	
	36.	

17.  $26 + 0.02x = 40$   
 $0.02x = 40 - 26$   
 $0.02x = 14$   
 $x = 700$

D



C 18.  $y = 0.02x + 26$

C 19.  $(1, 6)$

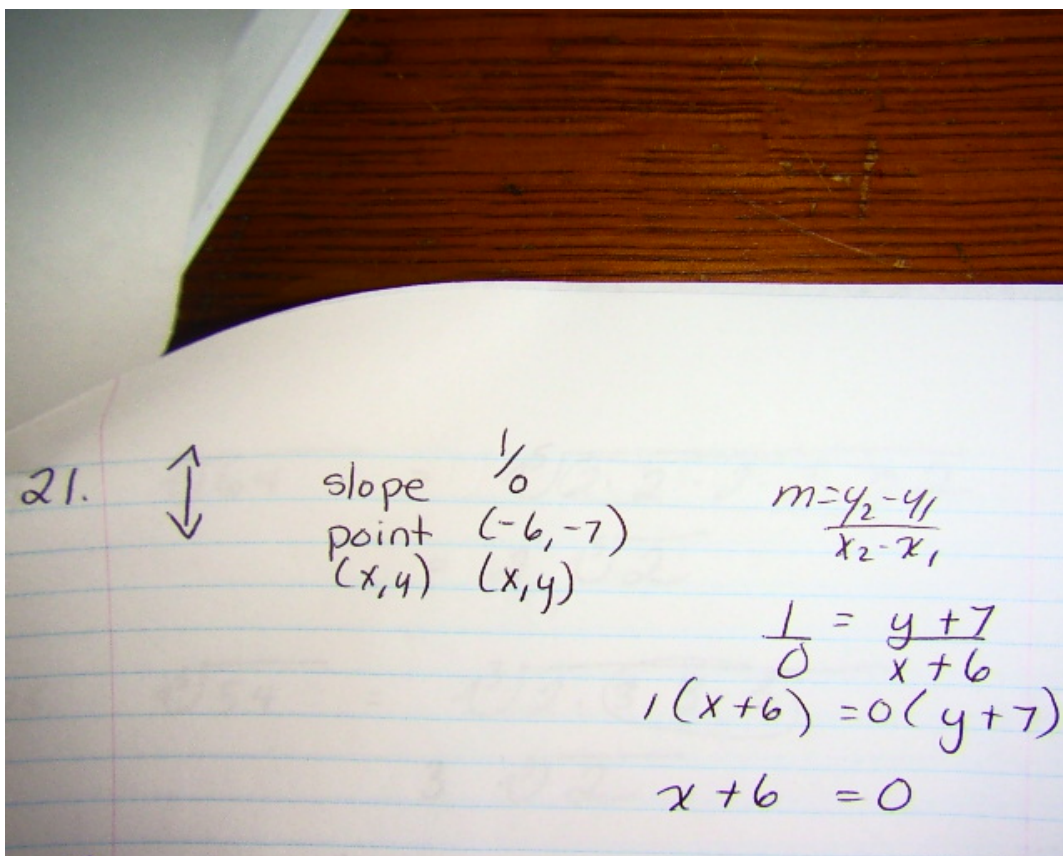
A 20.  $m = \frac{y_2 - y_1}{x_2 - x_1}$

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

$$2(x + 2) = 3(y - 5)$$

$$2x + 4 = 3y - 15$$

$$2x - 3y + 19 = 0$$



$$22. \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

$$c \quad \frac{1}{3} = \frac{k - (-1)}{6 - (-2)}$$

$$\frac{1}{3} = \frac{k+1}{6+2}$$

$$3(k+1) = 1(6+2)$$

$$3k+1 = 6+2$$

$$3k = 6+2-1$$

$$3k = 7$$

$$k = \frac{7}{3}$$

$$23. \quad y = mx + b$$

$$B \quad y = \frac{2}{4}x - 2$$

$$y = \frac{1}{2}x - 2$$

$$\begin{aligned} 24. \quad \sqrt[5]{64} &= \sqrt[5]{\underbrace{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}_5} \\ &= 2 \sqrt[5]{2} \end{aligned}$$

$$\begin{aligned} 25. \quad \sqrt[3]{54} &= \sqrt[3]{2 \cdot \underbrace{(3 \cdot 3 \cdot 3)}_3} \\ &= 3 \sqrt[3]{2} \end{aligned}$$

$$26. \left(\frac{1}{27}\right)^{-2/3}$$

$$D \quad \left(\frac{27}{1}\right)^{2/3}$$

$$\left(\sqrt[3]{27}\right)^2$$

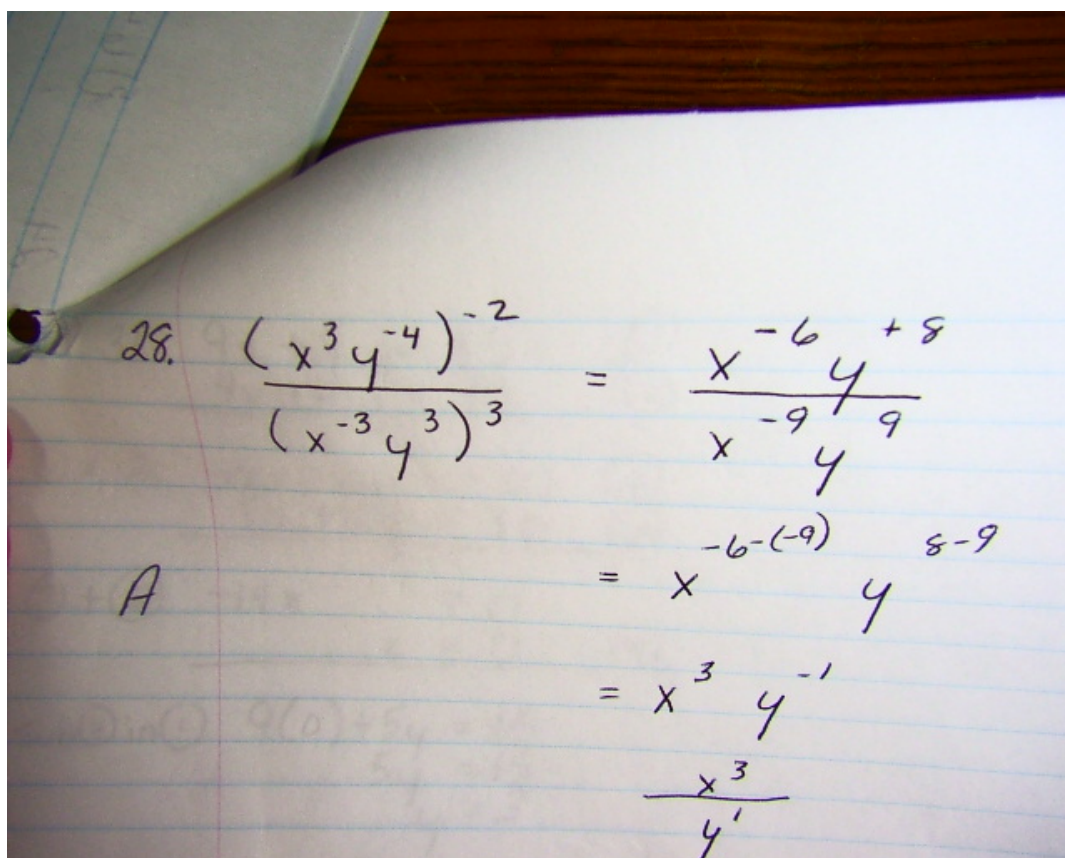
$$\left(\sqrt[3]{3 \cdot 3 \cdot 3}\right)^2$$

$$(3)^2$$

$$9$$

$$27. \left(\sqrt[4]{13}\right)^7$$

$$D \quad 13^{7/4}$$



28.  $\frac{(x^3 y^{-4})^{-2}}{(x^{-3} y^3)^3} = \frac{x^{-6} y^{+8}}{x^{-9} y^9}$

A  $= x^{-6-(-9)} y^{8-9}$

$= x^3 y^{-1}$

$\frac{x^3}{y^1}$

$$29. \quad 380 = 2 \cdot 2 \cdot 5 \cdot 19$$

$$2^2 \cdot 5 \cdot 19$$

A

E 30.

C 31.

A 32. Function



33. 
$$\begin{array}{r} 9x + 5y = 15 \quad (1) \\ 4x + 10y = 30 \quad (2) \\ \hline \end{array}$$

$$\begin{array}{r} (1) \times -2 \quad -18x - 10y = -30 \quad (3) \\ 4x + 10y = 30 \quad (2) \\ \hline \end{array}$$

$$\begin{array}{r} (3) + (2) \quad -14x \quad = 0 \\ \hline x = 0 \quad (4) \end{array}$$

sub (4) in (1) 
$$\begin{array}{l} 9(0) + 5y = 15 \\ 5y = 15 \\ y = 3 \\ (0, 3) \end{array}$$

$$\begin{array}{l} \textcircled{A} \text{ 34. } x - 3y = 1 \rightarrow x = 1 + 3y \\ 2x + 4y = -18 \\ 2(1 + 3y) + 4y = -18 \\ 2 + 6y + 4y = -18 \\ 6y + 4y = -18 - 2 \\ 10y = -20 \\ y = -2 \end{array} \left\{ \begin{array}{l} x = 1 + 3(-2) \\ x = 1 - 6 \\ x = -5 \end{array} \right. \quad (-5, -2)$$

(c)  $h = \text{hostas}$   
 $g = \text{geraniums}$

35.  $6h + 12g = 198$  (1)  
 $12h + 6g = 198$  (2)

(1)  $\times -2$   $-12h + -24g = -396$  (3)  
 $12h + 6g = 198$  (2)

(3) + (2)  $-18g = -198$

$g = 11$  (4)

Sub (4) in (1)  $6h + 12(11) = 198$   
 $6h + 132 = 198$   
 $6h = 198 - 132$   
 $6h = 66$   
 $h = 11$

$(11, 11)$ 

36. A

$$\begin{aligned} 37. \quad D &= \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2} \\ &= \sqrt{(8 - 2)^2 + (-2 - 6)^2} \\ \textcircled{A} \quad &= \sqrt{(6)^2 + (-8)^2} \\ &= \sqrt{36 + 64} \\ &= \sqrt{100} \\ &= 10 \end{aligned}$$

$$38. M = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$(B) \left( \frac{10 + 4}{2}, \frac{3 + 7}{2} \right)$$

$$\left( \frac{14}{2}, \frac{10}{2} \right)$$

$$(7, 5)$$

39. Range

$$(C) \quad -3 \leq y \leq \equiv$$
$$\{y \geq -3, y \in \mathbb{R}\}$$

40. Domain

(A)

$$-8 \leq x \leq 5$$

$$\{x \geq -8, x \in \mathbb{R}\}$$