

Final Exam Review "Work"

Unit 1

- 1) D; $25g^3, -17g^3$ Like terms have the same variables and same exponents.

2) $5(y+7) = 65$

$$5y + 35 = 65$$

$$5y - 35 = -35$$

$$\frac{5y}{5} = \frac{30}{5}$$

$$y = 6 \quad \{6\}$$

3) $\frac{x+8}{2} = \frac{5}{12}$

$$12(x+8) = 2(5)$$

$$12x + 96 = 10$$

$$12x - 96 = -96$$

$$\frac{12x}{12} = \frac{-86}{12}$$

$$x = -43/6 \quad \{-43/6\}$$

5) $\frac{-5d}{-5} = \frac{25}{-5}$

$$d = -5$$

$$\{-5\}$$

6) $\frac{3x-5}{4} = \frac{-3}{5}$

$$(4) \frac{3x}{4} = \frac{2(-3)}{5}$$

$$\frac{3x}{3} = \frac{8}{3}$$

$$x = 8/3 \quad \{8/3\}$$

7) $\frac{19}{-14} = \frac{-d}{-14}$

$$\frac{5}{-7} = \frac{-d}{-7}$$

$$d = -5 \quad \{-5\}$$

8) $3p-1 = 5(p-1) - 2(7-2p)$

$$3p-1 = 5p-5-14+4p$$

$$3p-1 = 9p-19$$

$$-9p \quad -9p$$

$$-6p-1 = -19$$

$$\frac{-6p}{-6} = \frac{-18}{-6}$$

$$p = 3 \quad \{3\}$$

9) $8d+4d-5d+7=4d$

$$7d+7=4d$$

$$-7 \quad -7$$

$$7d = 4d - 7$$

$$-4d \quad -4d$$

$$\frac{3d}{3} = \frac{-7}{3}$$

$$d = -7/3 \quad \{-7/3\}$$

10) $\frac{10}{12} = \frac{19}{x}$

$$\frac{10x}{10} = \frac{228}{10}$$

$x = 22.8$

$\{22.8\}$

11) $4a + 2 = 3b - 5$

$$\frac{4a}{4} = \frac{3b - 7}{4}$$

$a = \frac{3b - 7}{4}$

12) $\frac{2}{25} = \frac{x}{61}$ $x = \# \text{ of cheperones}$

$$\frac{25x}{25} = \frac{122}{25}$$

$x = 4.88$

You need 5 cheperones, bc 4 would be 100 but you are over by 22 students. so need 5.

Unit 2

14) $5n - 10 > 26$

Five times "n" minus ten is greater than twenty-six.

13) 1 pizza + 4 drinks
4 people
pizza = \$12.50
gift certificate = \$4.00
total spent is 13.70
cost of drink = ?

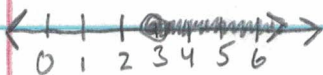
$$(12.50) + 4x(-4) = 13.70$$

$$\begin{array}{r} 8.50 + 4x = 13.70 \\ -8.50 \quad -8.50 \\ \hline 4x = 5.20 \end{array}$$

$x = 1.30$

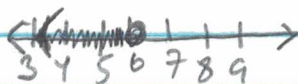
A large drink cost \$1.30.

15) $x \geq 3$



16) $\{x > 2\}$

17) $a - 2 \leq 6$
 $+2 \quad +2$
 $a \leq 6$



18) $6 + 9n \geq 8(n + 6)$
 $6 + 9n \geq 8n + 48$
 $-8n \quad -8n$
 $6 + n \geq 48$
 $-6 \quad -6$
 $n \geq 42$



19) $h+6-2(h-18) > 0$

$(h+6) - 2(h-18) > 0$

$-h + 42 > 0$
 $\quad \quad -42 \quad -42$

$\frac{-h > -42}{-1 \quad -1}$

$h < 42$

20) Standard Form

21) Point-Slope Form

22) Slope-Intercept Form

23) (0,0)



Unit 3

24) $m = ?$ $(2, 7)$ $(8, 3)$
 $\quad \quad \quad x_1 \ y_1 \quad x_2 \ y_2$

$m = \frac{y_2 - y_1}{x_2 - x_1} \quad m = \frac{3 - 7}{8 - 2}$

$m = \frac{-4}{6} \rightarrow m = -\frac{2}{3}$

25) The student did not keep the y's in order for the formula. Should have been $m = \frac{6-12}{18-9}$

26) $m = -\frac{2}{3} \quad b = \frac{4}{5}$

$y = mx + b$

$y = -\frac{2}{3}x + \frac{4}{5}$

27) $4x + 10y = 80$
 $\quad \quad -4x \quad \quad \quad -4x$

$\frac{10y}{10} = \frac{-4x + 80}{10}$

$y = -\frac{2}{5}x + 8$

$m = -\frac{2}{5} \quad b = 8$

28) $y = \frac{2}{3}x - 1$

(A)

29) $(-3, -2)$ $(3, 5)$ $y = mx + b$

$m = \frac{5 - (-2)}{3 - (-3)} \quad m = \frac{7}{6}$

$y = \frac{7}{6}x + b$

$5 = \frac{7}{6}(3) + b$

$5 = \frac{7}{2} + b$

$-\frac{7}{2} \quad -\frac{7}{2}$
 $1.5 = b$

$y = \frac{7}{6}x + 1.5$

30) $2x - 5y = 12$

$-5y = -2x + 12$
 $\quad \quad -5 \quad -5 \quad -5$

$y = \frac{2}{5}x - \frac{12}{5}$

$m = \frac{2}{5}$

$y = \frac{2}{5}x - 6$

$4y + 24 = 5x$

$\quad \quad -24 \quad -24$

$4y = 5x - 24$
 $\quad \quad 4 \quad 4 \quad 4$

$y = \frac{5}{4}x - 6$
 $\quad \quad b = -6$

31) $(6, -8) \ m = -\frac{1}{2}$
 $y - y_1 = m(x - x_1)$

$y - (-8) = -\frac{1}{2}(x - 6)$
 $y + 8 = -\frac{1}{2}(x - 6)$

32) $(-7, -5) \ (-4, -1)$
 $m = \frac{-1 - (-5)}{-4 - (-7)} \quad m = \frac{4}{3}$

a) $y - (-5) = \frac{4}{3}(x - (-7))$
 $y + 5 = \frac{4}{3}(x + 7)$

b) $y + 5 = \frac{4}{3}(x + 7)$
 $3(y + 5) = \frac{4}{3}(x + 7) \cdot 3$

$3y + 15 = 4x + 28$
 $\quad \quad \quad -15 \quad \quad -15$

33) $x + 10y = 90$

x-int
 $x + 10(0) = 90$

$x = 90$
 $(90, 0)$

y-int
 $0 + 10y = 90$

$y = 9$
 $(0, 9)$

$3y = 4x + 13$
 $-1(-4x + 3y = 13)$
 $4x - 3y = -13$

34) $y = -\frac{12}{5}x + 10 \leftarrow m = -\frac{12}{5}$
 lines //?

$-12x - 5y = 14$

$-\frac{5y}{-5} = \frac{12x + 14}{-5}$

$y = -\frac{12}{5}x - \frac{14}{5} \leftarrow m = -\frac{12}{5}$

Yes, same slope and different y-int.

Unit 4

35) $y = -2x + 5$
 $y = -4x - 1$

C

A) $(2, -9)$

$-9 = -2(2) + 5$

$-9 = -4 + 5$

$-9 \neq 1$

NO

B) $(-1, 7)$

$7 = -2(-1) + 5$ $(7 = -4(-1) - 1)$

$7 = 2 + 5$

$7 = 5 - 1$

$7 \neq 7$

$7 \neq 4$

NO

C) $(-3, 11)$

$11 = -2(-3) + 5$ $11 = -4(-3) - 1$

$11 = 6 + 5$

$11 = 12 - 1$

$11 = 11$

$11 = 11$

D) $(11, -3)$

36) (A)

37) $x = \text{cost of 1 egg}$
 $y = \text{cost of 1 piece of toast}$

$$\begin{aligned} 2x + y &= 1.50 \\ x + y &= .90 \end{aligned}$$

$$\begin{aligned} 2x + y &= 1.50 \rightarrow \\ -1(x + y &= .90) \rightarrow \\ \hline \end{aligned}$$

$$\begin{aligned} 2x + y &= 1.50 \\ -x - y &= -.90 \\ \hline \end{aligned}$$

$$\begin{aligned} x + y &= .90 \\ .60 + y &= .90 \\ y &= .30 \end{aligned}$$

$x = .60$

Cost of 1 egg is \$.60 and 1 piece of toast is \$.30.

(A)

GRAPH A

38)

$$y = 2x + 7$$

$$y = 3x$$

$$\begin{aligned} 3x &= 2x + 7 \\ -2x & \quad -2x \end{aligned}$$

$$x = 7$$

$$y = 3x$$

$$y = 3(7)$$

$$y = 21$$

(7, 21)

39)

$$x + 2y = -7$$

$$5x + 8y = -33$$

$$-4(x + 2y = -7) \rightarrow -4x - 8y = 28$$

$$5x + 8y = -33$$

$$x = -5$$

$$x + 2y = -7$$

$$\begin{aligned} -5 + 2y &= -7 \\ +5 \quad +5 \end{aligned}$$

$$2y = -2$$

$$y = -1$$

(-5, -1)

40)

$$3x + y = 15$$

$$2x - y = 5$$

$$\begin{aligned} 5x &= 20 \\ \frac{5}{5} & \quad \frac{5}{5} \end{aligned}$$

$$x = 4$$

(4, 3)

$$3x + y = 15$$

$$3(4) + y = 15$$

$$\begin{aligned} 12 + y &= 15 \\ -12 & \quad -12 \end{aligned}$$

$$y = 3$$

41) $x = 1^{\text{st}} \#$

$y = 2^{\text{nd}} \#$

$$x + y = 78$$

$$x - y = 26$$

$$\begin{aligned} 2x &= 104 \\ \frac{2}{2} & \quad \frac{2}{2} \end{aligned}$$

$$x = 52$$

(52, 26)

$$x + y = 78$$

$$52 + y = 78$$

$$\begin{aligned} -52 & \quad -52 \end{aligned}$$

$$y = 26$$

42) $P = 2l + 2w$

$l = ?$

$w = ?$

$P = 58$

$l = 4w + 9$

$w = w$

$58 = 2(4w + 9) + 2w$

$58 = 8w + 18 + 2w$

$58 = 10w + 18$

$\frac{40}{10} = \frac{10w}{10}$

$w = 4 \text{ cm}$

The length is 25cm and
the width is 4cm.

$l = 4w + 9$

$l = 4(4) + 9$

$l = 16 + 9$

$l = 25 \text{ cm}$

43) $1.4x + 7y \geq 21$

$10x - 2y \geq 16$

A) ~~(4, 2)~~

$1.4(4) + 7(2) \geq 21$

$5.6 + 7 \geq 21$

$12.6 \geq 21$ False

B) ~~(2, 2)~~

$1.4(2) + 7(2) \geq 21$

$2.8 + 14 \geq 21$

$16.8 \geq 21$ False

C) ~~(1, 2)~~

$1.4(1) + 7(2) \geq 21$

$1.4 + 14 \geq 21$

$15.4 \geq 21$ False

D) (5, 2)

$1.4(5) + 7(2) \geq 21$

$7 + 14 \geq 21$

$21 \geq 21$ ✓

$10(5) - 2(2) \geq 21$

$50 - 4 \geq 21$

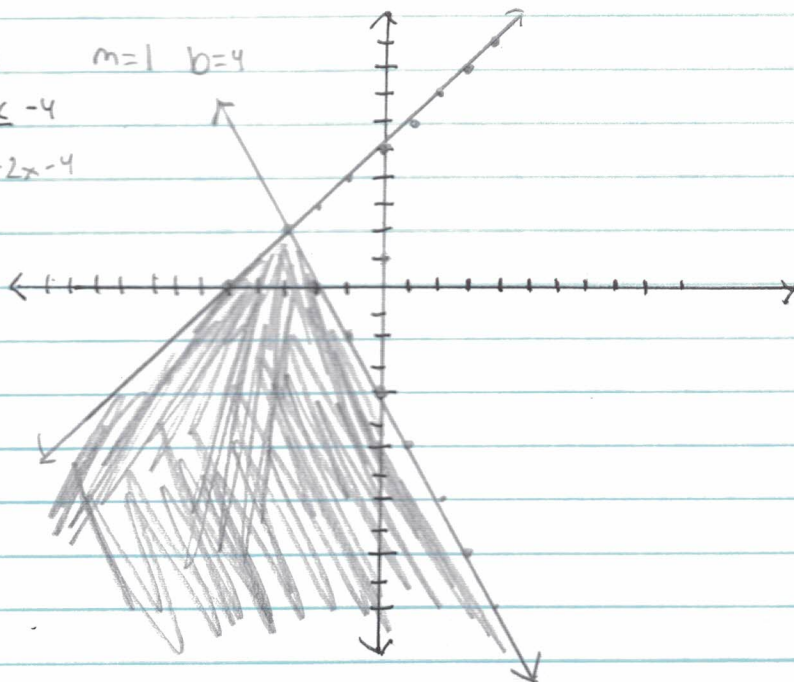
$46 \geq 21$ ✓

D

44) $y \leq x + 4$ $m = 1$ $b = 4$

$2x + y \leq -4$

$y \leq -2x - 4$



Unit 5

$$45) (-7k^4) \cdot 5j^{10} \cdot 4k^5$$

$$(-7 \cdot 5 \cdot 4) k^{4+5} j^{10}$$

$$\boxed{-140k^9 j^{10}}$$

$$46) (3xy^3)^2 (xy^4)^6$$

$$3^2 x^{1 \cdot 2} y^{3 \cdot 2} \cdot x^{1 \cdot 6} y^{4 \cdot 6}$$

$$9x^2 y^6 \cdot x^6 y^6$$

$$9x^{2+6} y^{6+6}$$

$$47) 8c^6 d^{-2}$$

$$\boxed{\frac{8c^6}{d^2}}$$

$$\boxed{9x^8 y^{12}}$$

$$48) (x^{-6})^3$$

$$x^{-6 \cdot 3}$$

$$x^{-18}$$

$$\boxed{\frac{1}{x^{18}}}$$

$$49) (x^9)^0 (x^7)^2$$

$$x^{9 \cdot 0} x^{7 \cdot 2}$$

$$x^0 \cdot x^{14}$$

$$1 \cdot x^{14}$$

$$\boxed{x^{14}}$$

$$50) \frac{x^5 y^{-5}}{x^3 y^{-3}}$$

$$x^{5-3} y^{-5-(-3)}$$

$$x^2 y^{-2}$$

$$\boxed{\frac{x^2}{y^2}}$$

$$51) A(t) = P(1 + \frac{r}{n})^{nt}$$

$$P = 4,200 \quad r = 5\% \quad t = 4 \quad n = \text{annually (1)}$$

$$A(t) = 4200(1 + \frac{.05}{1})^{1 \cdot 4}$$

$$= 4200(1.05)^4$$

$$= 5105.12625$$

After 4 years the balance will be \$5105.13,

$$52) A(t) = P(1 + \frac{r}{n})^{nt}$$

$$P = 4100 \quad r = 7\% \quad t = 7 \quad n = 4 \text{ (quarterly)}$$

$$A(t) = 4100(1 + \frac{.07}{4})^{4 \cdot 7}$$

$$= 4100(1.0175)^{28}$$

$$= 6664.19$$

After 7 years the balance will be \$6664.19.

Unit 6

53) $5g - 3g^3 + 10g^2 - 8$

$$-3g^3 + 10g^2 + 5g - 8$$

Cubic 4 term polynomial

55) $\frac{1}{3}n(-6 + 27m - 51p)$

$$-2n + 9m - 17p$$

57) $3p^4(4p^4 + 7p^3 + 4p + 1)$

$$12p^{4+4} + 21p^{4+3} + 12p^{4+1} + 3p$$

$$12p^8 + 21p^7 + 12p^5 + 3p$$

54) $(7w^2 - 5w - 8) - (8w^2 + 4w - 3)$

$$7w^2 - 5w - 8 - 8w^2 - 4w + 3$$

$$7w^2 - 8w^2 - 5w - 4w - 8 + 3$$

$$-w^2 - 9w - 5$$

56) $(8p-1)(3p+1)$

	$8p - 1$	
$8p$	$64p^2$	$-8p$
$+1$	$8p$	-1

$$64p^2 - 1$$

58) $(2x-6)(4x-5)$

	$2x - 6$	
$4x$	$8x^2$	$-24x$
-5	$-10x$	30

$$8x^2 - 34x + 30$$

59) $(3k+4)(3k^2-5k-3)$

	$3k^2$	$-5k$	-3
$3k$	$9k^3$	$-15k^2$	$-9k$
$+4$	$12k^2$	$-20k$	-12

$$9k^3 - 3k^2 - 20k - 12$$

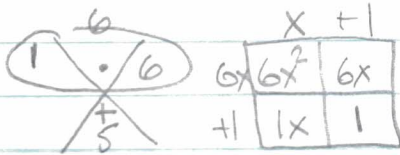
60) $(3m+8)^2$

$$(3m+8)(3m+8)$$

	$3m + 8$	
$3m$	$9m^2$	$24m$
$+8$	$24m$	64

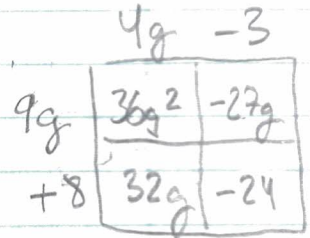
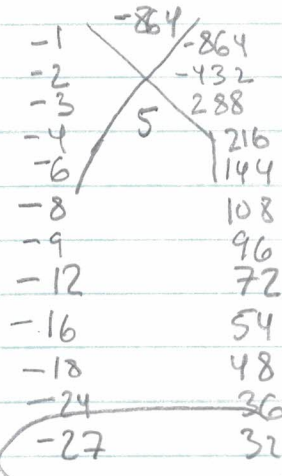
$$9m^2 + 48m + 64$$

61) $6x^2 + 5x + 1$



$(6x+1)(x+1)$

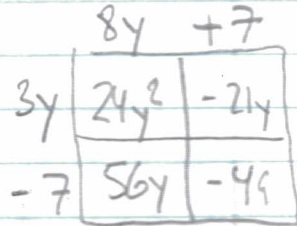
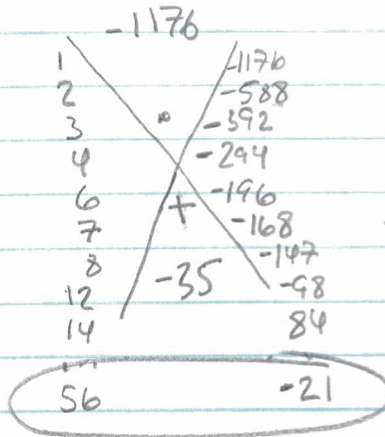
62) $36g^2 + 5g - 24$



$(9g+8)(4g-3)$

63) $46y^2 - 140y - 196$
 $4(24y^2 - 35y - 49)$

$4(3y-7)(8y+7)$

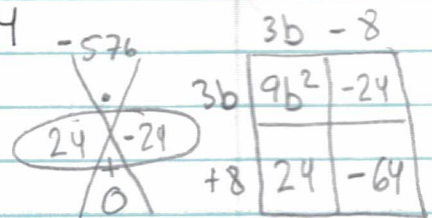


64) $49b^2 + 112b + 64$

Perfect squares!
 $(7b)^2$ $(8)^2$
 $(7b+8)(7b+8)$

$(7b+8)^2$

65) $9b^2 - 64$



$(3b+8)(3b-8)$