

EOC HW - Equations & Linear Functions

1. $8x = -4(x+3)$

$$8x = -4x - 12$$

$$12x = -12$$

$$x = -1$$

(A)

2. $9x^2 - c = d$

$$9x^2 = d + c$$

$$x^2 = \frac{d+c}{9}$$

(A)

$$x = \sqrt{\frac{d+c}{9}} = x = \frac{\sqrt{d+c}}{3}$$

3. $m = -2$

$$b = 1$$

$$y = -2x + 1$$

(A)

4. $\frac{520 \cancel{\text{yd}}}{1 \cancel{\text{min}}} \cdot \frac{1 \cancel{\text{min}}}{60 \text{ sec}} \cdot \frac{3 \text{ ft}}{1 \cancel{\text{yd}}} = \frac{1560 \text{ ft}}{60 \text{ sec}} = \frac{26 \text{ ft}}{\text{sec}}$

(B)

5. 1st: x

$$x + x + 1 = 3(x+2) - 17$$

$$1 = x - 11$$

2nd: $x+1$

$$2x+1 = 3x+6-17$$

$$+11 \quad +11$$

(C)

3rd: $x+2$

$$2x+1 = 3x-11$$

$$x = 12$$

6. $(16x^{-6}y^4z^8)^{\frac{-1}{4}}$

$$= 16^{-1/4} x^{6/4} y^{-4/4} z^{-8/4}$$

$$= \frac{x^{3/2}}{16^{1/4} y^1 z^2}$$

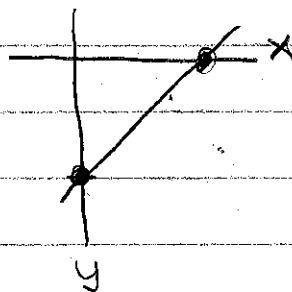
$$= \frac{x^{3/2}}{2yz^2}$$

(C)

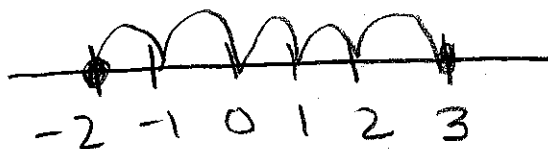
7. $3x - 4y = 28$

$$x\text{-int: } 9.\bar{3}$$

$$y\text{-int: } -7$$



(A)



$$3 + 2 = 5$$

8. $f(x) = -2x + 3$

$$m = -2$$

$g(x) = 3x - 14$

$$m = 3$$

$$-2 - 3 = -5$$

(B)

9. $y = 12x + 3 + 5$

$x = 10$ classes

one time fee

$$y = 12x + 8$$

$$y = 12(10) + 8$$

$$y = 120 + 8$$

$$y = \$128$$

10. $y = 35x + 250$

↑

↑

starting amt

amt added each month

(A)

11. Range = y-values

-4 to 6

(B)

12. $m = \frac{6-2}{-9-3} = \frac{4}{-12} = -\frac{1}{3}$

$$y = mx + b$$

$$2 = -\frac{1}{3}(3) + b$$

$$y = -\frac{1}{3}x + 3$$

$$2 = -1 + b$$

$$+1 \quad +1$$

$$3 = b$$

$$3 \left[\frac{1}{3}x + y = 3 \right] = x + 3y = 9$$

13. $3(x+2) = 12 - 2y$

$$3x + 6 = 12 - 2y$$

$$+2y$$

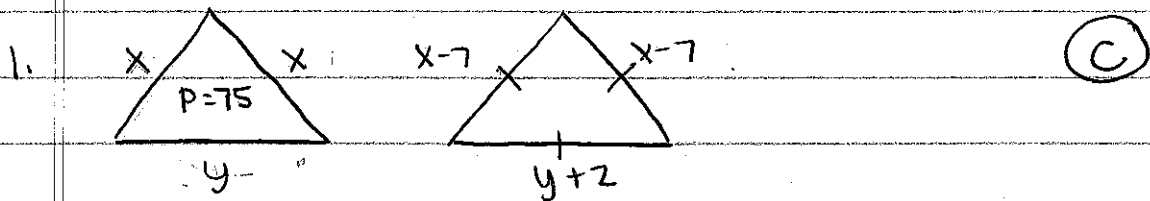
$$-6 \quad +2y$$

$$3x + 2y + 6 = 12$$

$$-6 \quad -6$$

$$3x + 2y = 6$$

EOC Review: Systems



$$2x + y = 75$$

$$2(y+9) + y = 75$$

$$3y = 57$$

$$\begin{cases} x-7 = y+2 \\ \rightarrow x = y+9 \end{cases}$$

$$2y + 18 + y = 75$$

$$y = 19$$

$$3y + 18 = 75$$

2.

	%	Amt	
Mix A	10	x	$10x + 90(50) = 50(x+50)$
Mix B	90	50	$10x + 4500 = 50x + 2500$
Total =	50	x+50	$2000 = 40x$
			$x = 50$ (D)

3.

	%	Amt	
Mix A	10	x	$10x + 4(9) = 6(x+9)$
Mix B	4	9	$10x + 36 = 6x + 54$
Total	6	x+9	$4x = 18$
			$x = 4.5$ (A)

4.

	%	Amt	
Mix A	7	x	$7x + 17(4) = 11(x+4)$
Mix B	17	4	$7x + 68 = 11x + 44$
Total	11	x+4	$24 = 4x$
			$x = 6$ (C)

5.

$$\begin{cases} d + q = 19 \\ 10d + 25q = 370 \end{cases}$$

$$\begin{array}{r} d + q = 19 \\ \times 10 \quad \rightarrow 10d + 10q = 190 \\ \hline -15q = -180 \\ 15q = 180 \\ q = 12 \end{array}$$

$$15q = 180$$

$$q = 12$$

(A)

$$6. W + L = 40$$

$$W = L + 18$$

$$L + 18 + L = 40$$

$$2L + 18 = 40$$

$$2L = 22$$

$$L = 11$$

$$W + 11 = 40$$

$$W = 29$$

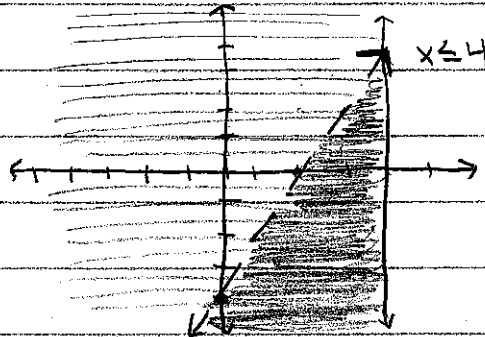
(C)

$$7. 2x - y > 4$$

$$\frac{-y}{-1} > \frac{-2x + 4}{-1}$$

$$y < 2x - 4$$

↑ ↑
less than y-int.

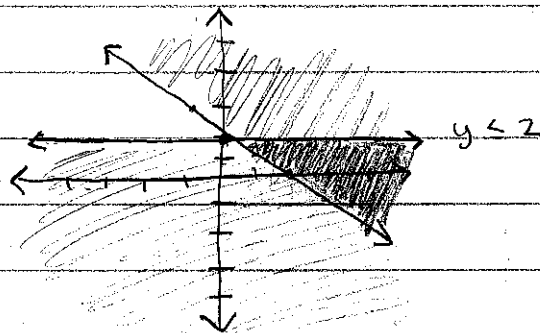


(B)

$$8. x + y \geq 2$$

$$y \geq -x + 2$$

↑ ↑
greater than y-int



(D)

$$9. \begin{cases} 2x + y = 7 \\ 3x - 4y = 5 \end{cases}$$

$$3x - 4y = 5$$

$$\begin{array}{r} 3x - 4y = 5 \\ -8x + 4y = 28 \\ \hline 11x = 33 \\ x = 3 \end{array}$$

$$11x = 33$$

$$x = 3$$

$$2(3) + y = 7$$

$$6 + y = 7$$

$$y = 1$$

(D)

(3, 1)

$$10. X = 2y - 8$$

$$4x + y = 13$$

$$4(2y - 8) + y = 13$$

$$8y - 32 + y = 13$$

$$9y = 45$$

$$y = 5$$

$$x = 2(5) - 8$$

$$x = 10 - 8$$

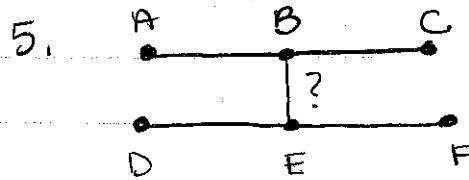
$$x = 2$$

(C)

(2, 5)

EOG Review → Geometry, Stats, Sequences

1. $-3, 1, 5, 9$
 $\quad \downarrow \quad \downarrow \quad \downarrow$
 $\quad +4 \quad +4 \quad +4$
 (D)



2. $y = 1.5x + 3.5$ ←
 Stat → Calc → 4
 (B)
 $y = 5 + (n-1)(1.5)$
 $y = 5 + 1.5n - 1.5$
 $y = 1.5n + 3.5$

$B_x = \frac{1+3}{2} = \frac{4}{2} = 2$ B(2,6)

$B_y = \frac{4+8}{2} = \frac{12}{2} = 6$

$E_x = \frac{3+5}{2} = \frac{8}{2} = 4$ E(4,0)

$E_y = \frac{-1+1}{2} = \frac{0}{2} = 0$

3. a) Boys = 27
 25105 = 21
 b) $10/27 = 37\%$
 c) $13/23 = 57\%$
 d) $27/56 = 48\%$
 (D)

$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
 $d = \sqrt{(4-2)^2 + (0-6)^2}$
 $= \sqrt{(2)^2 + (-6)^2}$
 $= \sqrt{4+36}$
 $= \sqrt{40} = 6.3$ (C)

4.

24	28	26	72
0	4	4	8
24	32	24	80

 (B)

6. $16x^2 - 1 = (4x-1)(4x+1)$
 (A)

7. $V = \pi r^2 h$ $d=8$ $r=4$
 $V = (3.14)(4^2)(10)$
 $V = 502.4$
 (B)

8. Line of best fit \rightarrow Stat \rightarrow Calc \rightarrow 4

$$y = 0.72685x + 56.66937$$

	X	Actual	y \leftarrow predicted
Sarah	40	95	$y = 0.72685(40) + 56.66937 = 85.743$
Joel	10	60	$y = 63.938$
Gabby	20	72	$y = 71.206$
Lawrence	65	100	$y = 103.91$
Robert	42	85	$y = 87.197$

↑
more
than 5
off

$$1/5 = 20\% \quad \textcircled{A}$$

9. \textcircled{B}

10. \textcircled{C}

$$\begin{aligned} 11. \quad AB &= \sqrt{(3+1)^2 + (1-3)^2} \\ &= \sqrt{4^2 + (-2)^2} \\ &= \sqrt{16+4} \\ &= \sqrt{20} \end{aligned} \quad \begin{aligned} BC &= \sqrt{(1-3)^2 + (-3-1)^2} \\ &= \sqrt{(-2)^2 + (-4)^2} \\ &= \sqrt{4+16} \\ &= \sqrt{20} \end{aligned} \quad \begin{aligned} AC &= \sqrt{(1+1)^2 + (-3-3)^2} \\ &= \sqrt{(2)^2 + (-6)^2} \\ &= \sqrt{4+36} \\ &= \sqrt{40} \end{aligned}$$

$$P = \sqrt{20} + \sqrt{20} + \sqrt{40}$$

$$P = 15.23$$

\textcircled{A}

EOC Review: Exponential & Rationals

1. $k = -4$

2. $(64x^2y^3)^{-1/2}$

$$64^{-1/2} \times x^{-1} \times y^{-3/2} = \frac{1}{8xy^{3/2}} \quad \text{(C)}$$

3. A → true
 B → true
C → False
 D → true

7. $y = a(1-r)^t$
 $y = 28000(1-0.15)^t$ (C)
 $y = 28000(0.85)^t$

4. $y = a(1+r)^t$
 $y = 1500(1+0.08)^{15}$
 $y = \$4798.25$

8. $y = a(1+r)^t$
 $y = 900(1+0.0425)^4$
 $y = 1063.03$ (B)

5. $y = 0.5(3)^x$
A → true
 B → False
 C → False
 D → False

	City 1	City 2
	+298	x 2
Linear →	+303	x 2
	+311	x 2

Exponential

6. $y = a(1+r)^t$
 $y = 24000(1+0.024)^7$
 $t = \frac{2021 - 2014}{1}$
 (C)

10. $x^{1/4} = \sqrt[4]{x}$ (A)

11. $(mn)^{-1/6} = \frac{1}{(mn)^{1/6}} = \frac{1}{\sqrt[6]{mn}}$ (B)

12. $(x^8y^8)^{1/3} = \sqrt[3]{x^8y^8} = (A)$

EOC Review: Quadratics and Polynomials

1. $x^2 + 15x - 54$

$$\begin{array}{r} \cancel{-54} \\ 18 \quad \cancel{-3} \\ \quad 15 \end{array}$$

$$(x+18)(x-3)$$

(C)

2. $(5m^3 + 2m^2 - m) + (m^2 + 4m - 2)$

$$5m^3 + 3m^2 + 3m - 2$$

(G)

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

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

$$\begin{array}{r} \cancel{-12} \\ 4 \quad \cancel{-3} \\ \quad 1 \end{array}$$

$$(2x^2 + 4x - 3x - 6)$$

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

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

$$\frac{x-3}{2x-3}$$

(H)

6. $x^2 + x - 12 = 0$

$$\begin{array}{r} \cancel{-12} \\ 4 \quad \cancel{-3} \\ \quad 1 \end{array}$$

$$(x+4)(x-3) = 0$$

$$x+4=0 \quad x-3=0$$

$$x=-4 \quad x=3$$

(G)

4.

$$(x-k)(y-k)$$

$$xy - kx - ky + k^2$$

(H)

5.

$$2x^4(3x^3 - x^2 + 5x)$$

$$6x^7 - 2x^6 + 10x^5$$

(C)

$$7. k^3 + 2k^2 + 1 + 3k^2 - 4$$

$$k^3 + 5k^2 - 3$$

(G)

$$8. (3x^2 + 4x - 1) + (-2x^2 - 1x + 3)$$

$$3x^2 - 2x^2 + 4x - 1x - 1 + 3$$

$$x^2 + 3x + 2$$

(B)

$$9. 36 = -16t^2 + 60t$$

$$-16x^2 + 60x - 36 = 0$$

$$4x^2 - 15x + 9 = 0$$

~~$$\begin{array}{ccc} & 36 & \\ -12 & \times & -3 \\ & -15 & \end{array}$$~~

$$(4x^2 - 12x) - 3x + 9$$

$$4x(x-3) - 3(x-3)$$

$$(4x-3)(x-3) = 0$$

$$4x-3=0$$

$$x-3=0$$

$$x = 0.75$$

$$x = 3$$

A or D

$$10. x = \frac{8}{2(-2)} = \frac{8}{-4} = -2$$

$$y = -2(-2)^2 - 8(-2) + 11$$

$$= 19$$

(B)

$$11. -3x^2 + 27 = 0$$

$$-3(x^2 - 9) = 0$$

$$-3(x-3)(x+3) = 0$$

$$x-3 \quad x=-3$$

2 solutions

(C)

$$12. y = x^2 + 4x$$

$$x = \frac{-4}{2} = -2$$

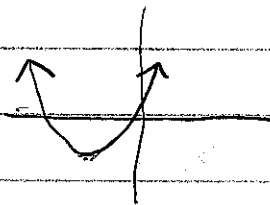
$$y = (-2)^2 + 4(-2)$$

$$= 4 - 8$$

$$= -4$$

$$(-2, -4)$$

range = y-val.



(B)

$$13. y = -2(25)^2 + 5$$

$$= -2(25) + 5$$

$$= -50 + 5$$

$$= -45$$

(D)

