

# EOC Review Packet

1.  $y \leq 2x + 2$  slope: 2 y-int: (0, 2) solid line shaded ↓  
 $y > -3x - 1$  slope: -3 y-int: (0, -1) dotted line shaded ↑  
 Answer: C

3.

x	$f(x) = 200(2)^x$	$g(x) = 500x + 400$	
1	$200(2)^1 = 400$	$500(1) + 400 = 900$	X = 4
2	$200(2)^2 = 800$	$500(2) + 400 = 1400$	
3	$200(2)^3 = 1600$	$500(3) + 400 = 1900$	
4	$200(2)^4 = 3200$	$500(4) + 400 = 2400$	

↑ greater ↑ smaller

2.  $M(t) = -t^2 + 10t$  Hours to highest = x of vertex  
 $t = \text{time} = x$   $x = \frac{-10}{2(-1)} = 5$  hours  
 $M = \text{meds} = y$

4.  $f(x) = \frac{1}{2}(2x - 4)$  y-intercept: (0, -2) Answer: B  
 $f(x) = x - 2$

5. 10 = initial height  $y = ab^x$  Answer: B  
 $2/3 = \text{rate of decrease}$   $y = 10(2/3)^x$

6.  $3(x-4)^2$   
 $3(x-4)(x-4)$   
 $3(x^2 - 8x + 16)$   
 $3x^2 - 24x + 48$
- $\begin{array}{r} 16 \\ \times 3 \\ \hline 48 \end{array}$
- Answer: B

7. Jane =  $x$

Derrick =  $y$

$$x = 2y - 1$$

$$x + y = 11$$

$$2y - 1 + y = 11$$

$$3y - 1 = 11$$

$$3y = 12$$

$$y = 4$$

**4 Books**

8.  $x = \# \text{ of items}$

$$4x \leq 50 - 20$$

$$4x \leq 22$$

$$x \leq 5.5$$

$$\begin{array}{r} 5.5 \\ 4 \overline{) 22.0} \\ \underline{-20} \\ 20 \end{array}$$

Round down

(can't have half of an item).

Answer:

5

9.  $-5t^2 + 40t = 0$

$$-5t(t - 8) = 0$$

$$-5t = 0$$

$$t = 0$$

$$t - 8 = 0$$

$$t = 8$$

Answer:

8 seconds

10.  $f(x) = \frac{1}{2}x - 6$

y-int:  $(0, -6)$

$$f(x+k) = \frac{1}{2}x - 4$$

y-int:  $(0, -4)$

From -6

to -4

Add 2

$k = 2$

11.  $f(x) = 10,000 - 1500x$

$x = \text{days}$

$$\begin{array}{r} 1500 \\ x \quad 5 \\ \hline 7500 \end{array}$$

$$x = 5$$

$$7500$$

$$f(x) = 10000 - 1500(5)$$

$$f(x) = 10000 - 7500$$

$$f(x) = 2500$$

2500

termites

12.  $4x + 3 = 0$

$$4x = -3$$

$$x = -3/4$$

$$6x - 3 = 0$$

$$6x = 3$$

$$x = 1/2$$

$$x = 1/2$$

13.  $x = \# \text{ of hours}$        $250x + 750 \leq 2500$       
$$\begin{array}{r} 250 \overline{)1750} \\ \underline{-1750} \\ 0 \end{array}$$
      Answer:  

$$\begin{array}{r} 24 \\ 2500 \\ \underline{-750} \\ 1750 \end{array}$$
       $250x \leq 1750$        $7 \text{ hours}$   
 $X \leq 7 \text{ hours}$

14.  $f(n) = 0.2n + 80$        $f(n) = 0.2(31) + 80$       
$$\begin{array}{r} 31 \\ \times 0.2 \\ \hline 6.2 \end{array}$$
      Answer:  
 $n = \text{day of month}$        $f(n) = 6.2 + 80$        $86.2$   
 $n = 31$        $f(n) = 86.2$

15. Slope:  $\frac{\text{rise}}{\text{run}} = \frac{2}{3}$

16. slope:  $-\frac{3}{2}$        $2 = -\frac{3}{2}(3) + b$        $2 = -4.5 + b$       X-int =  
 $y = mx + b$        $6.5 = b$        $y = -\frac{3}{2}x + 6.5$        $(\frac{13}{3}, 0)$   
 $2 = \frac{-9}{2} + b$

$0 = -\frac{3}{2}x + 6.5$        $-13 = -3x$   
 $-6.5 = -\frac{3}{2}x$        $x = \frac{13}{3}$

17. Enter table into stat      Answer:  
 $2^{\text{nd}} \rightarrow y \Rightarrow \text{Plot on} \rightarrow \text{ZOOM} \rightarrow 9$       C

18.  $y_1 = -2x + 4$        $2^{\text{nd}} \rightarrow \text{Trace} \rightarrow 5$        $x = 0.69$   
 $y_2 = (2)^x + 1$       Enter  $\times 3$       Answer:  
 Focus on X-value      A

19.  $B = \pi r^2$

$262 = \frac{(3.14)r^2(10)}{3}$

Answer:

$V = \frac{\pi r^2 h}{3}$

3

B

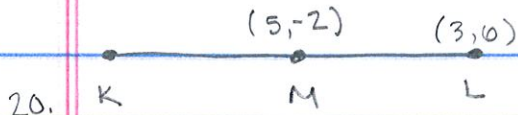
$786 = 31.4r^2$

$V = 262$

$25.08 = r^2$

$h = 10$

$r = 5$



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

$-2 = \frac{0+y}{2}$

K:

(-7, -10)

$x_m = \frac{x_1 + x_2}{2}$

$10 = 3+x$

$-4 = 0+y$

Answer:

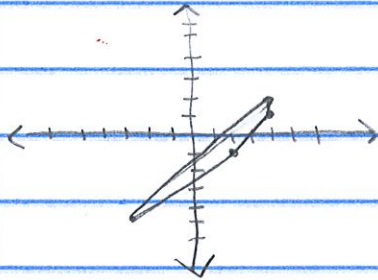
$y_m = \frac{y_1 + y_2}{2}$

$x = 7$

$y = -10$

C

21.



Answer:

C

22.  $y = a(1+r)^t$

$y = 100(1+0.25)^x$

Answer:

$a = 100$

$y = 100(1.25)^x$

C

$r = 0.25$

$t = x$  years

23. 

Cuts	1	2	3	4	5	6
Pieces	2	4	8	16	32	64

$\underbrace{\quad}_{\times 2}$   
 $\underbrace{\quad}_{\times 2}$   
 $\underbrace{\quad}_{\times 2}$   
 $\underbrace{\quad}_{\times 2}$   
 $\underbrace{\quad}_{\times 2}$

Answer:

B

Multiplication = exponential

24. 

	B	G
Leave	20	30
stay	65	45

"of boys" = total

Answer:

Leave =  $\frac{20}{85} \times 100$

# of Boys

B

25.  $y = 100[(0.78)^3]^x$       Answer: A  
 $\uparrow \rightarrow (0.78)^3 = 0.47 \times 100 = 47\%$

26. Domain = x-values

a) all integers = all numbers (including neg.)

b) all positive integers = 0-8 (whole #s)

c) all positive real #s = 0-8 (including decimals)

The # of tickets can't be negative, nor can you purchase part of a ticket (decimal), so the answer must be **B**

27. Line of best fit = stat       $y = 26.853(3) - 4.819$       Answer: B  
 $y = 26.853x - 4.819$        $y = 75.74 \approx 76$   
 $x = 3$

28.  $s = \#$  of shirts       $s + p \leq 500$       Answer: C  
 $p = \#$  of pants       $s \geq p$   
at least means  $\geq$        $p \geq 100$   
at most means  $\leq$

29.  $A = LW$        $(3x-2)(2x+6) = A$       Answer: B  
 $L = 3x-2$        $6x^2 + 18x - 4x - 12 = A$   
 $W = 2x+6$        $6x^2 + 14x - 12 = A$

30. 10, 12, 14, 16...       $f(n) = n + 2$       Answer: A  
 $\downarrow \quad \downarrow \quad \downarrow$   
 $+2 \quad +2 \quad +2$       Next = Now + 2

31. Answer:

B

32. Use pythagorean Theorem  
to find length & width.

$$A = LW$$

$$A = (8\sqrt{2})(4\sqrt{2})$$

$$A = 32\sqrt{4}$$

$$A = 32(2)$$

$$A = 64$$

$$4^2 + 4^2 = W^2$$

$$8^2 + 8^2 = L^2$$

$$16 + 16 = W^2$$

$$64 + 64 = L^2$$

$$W^2 = 32$$

$$128 = L^2$$

$$\hat{8} \hat{4}$$

$$\hat{64} \hat{2}$$

$$\hat{4} \hat{2} \hat{2}$$

$$\hat{8} \hat{8}$$

$$\hat{2} \hat{2}$$

$$L = 8\sqrt{2}$$

Answer: C

$$W = 4\sqrt{2}$$

33.  $m = \frac{1}{2}$

$$y = mx + b$$

$$y = \frac{1}{2}x + 4$$

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

Answer:

$(-2, 3)$

$$-2 \left( -\frac{1}{2}x + y = 4 \right)$$

C

$$3 = -1 + b$$

$$b = 4$$

$$1x - 2y = -8$$

34. Answer: A

35. Answer: A

36. Answer:

37.  $x = \# \text{ of weeks}$

$$50x + 200 = 650$$

Answer: A

$$50x = 450$$

$$x = 9 \text{ weeks}$$

38.  $\sqrt[4]{x^8} = x^{\frac{8}{4}} = x^2$       Answer: B

39.  $y = 4.25x - 13.25$       Answer: C

40.  $\frac{20x^2 + 5x}{5x} = 4x + 1$       Answer: B

41.  $v(D) = \left(\frac{m}{v}\right)v$        $\frac{vD}{v} = \frac{m}{D}$       Answer: C  
 $vD = m$        $v = \frac{m}{D}$

42. rate of change = slope      (2005, 595) and (2010, 895)  
slope =  $\frac{y_2 - y_1}{x_2 - x_1}$        $m = \frac{895 - 595}{2010 - 2005} = \frac{300}{5} = 60$   
time is always x      Answer: B

43.  $x^2 + 8x + 7 = -8$        $x = \frac{-8 \pm \sqrt{8^2 - 4(1)(15)}}{2(1)}$       Answer: C  
 $x^2 + 8x + 15 = 0$   
a=1 b=8 c=15

44. Answer: A

45.  $S = 2\pi r l + 2\pi r^2$        $l = \frac{S - 2\pi r^2}{2\pi r}$       Answer: D  
 $\frac{S - 2\pi r^2}{2\pi r} = \frac{2\pi r l}{2\pi r}$

$$46. \frac{3x^4 + 9x^2 + 15x}{3x} = \frac{3x^4}{3x} + \frac{9x^2}{3x} + \frac{15x}{3x} = x^3 + 3x + 5$$

Answer: C

$$47. \begin{array}{lll} g(x) = -2x - 8 & h(x) = -3x - 8 & -2 > -3 \\ m = -2 & n = -3 & m > n \end{array}$$

Answer: B

$$48. \frac{36y - 81x^2y}{9y(4 - 9x^2)} = \frac{9y(2 - 3x)(2 + 3x)}{9y(4 - 9x^2)}$$

D.O.S.

Answer: B

$$49. x^2 - 4x - 32 = 0$$

Answer: B

~~$$\begin{array}{r} \phantom{=} 32 \\ -8 \phantom{=} 4 \\ \phantom{=} -4 \phantom{=} \phantom{=} \end{array}$$~~

$$(x - 8)(x + 4) = 0$$

$$50. \frac{x^{18}y^{12} + x^9y^8}{x^3y^4} = \frac{x^{10}y^{12}}{x^3y^4} + \frac{x^9y^8}{x^3y^4} = x^{15}y^8 + x^6y^4$$

Answer: D

$$51. y = x^2 + 2x - 3$$

"a" is +, graph opens up

y-int: (0, -3)

$$x = \frac{-2}{2(1)} = -1$$

Answer: D

A.O.S. = x = -1

$$52. y = 2x - 2$$

Answer: A

slope =  $\frac{2}{1}$       y-int: -2

$$53. \begin{array}{ll} 2x - y < 10 & \text{Dotted line} \\ -1y < -2x + 10 & \text{shade above} \\ y > 2x - 10 & \text{slope: 2} \\ & \text{y-int: -10} \end{array}$$

Answer: B



54.  $B = \frac{703W}{h^2}$        $W = \frac{Bh^2}{703}$       Answer: C

$h^2 B = 703W$

55.  $x^2 + 6x = 16$        ~~$\begin{array}{c} -16 \\ 8 \quad -2 \\ 6 \end{array}$~~        $(x+8)=0$      $(x-2)=0$       Answer:  
 $x^2 + 6x - 16 = 0$        $x = -8$      $x = 2$       C

56.  $6 - 3(4x - 5) = 7$        $-12x = -14$        $x = \frac{7}{6}$       Answer:  
 $6 - 12x + 15 = 7$        $x = \frac{-14}{-12}$       6      B  
 $-12x + 21 = 7$        $-12$

57.  $y^4 - 36 = (y^2 - 6)(y^2 + 6)$       Answer: C

58.  $x^2 - 7x + 18 = 28$        ~~$\begin{array}{c} -18 \\ -9 \quad 2 \\ -7 \end{array}$~~        $x - 9 = 0$      $x + 2 = 0$       Answer:  
 $x^2 - 7x - 18 = 0$        $x = 9$        $x = -2$       B

59. y-int: -1    solid line (or = to)     $y \geq \frac{1}{2}x - 1$       Answer:  
 slope:  $\frac{1}{2}$     shaded above (>)      D

60.  $6(4x + 5) = 3(x + 8) + 3$        $21x + 30 = 27$        $x = \frac{-3}{21} = -\frac{1}{7}$   
 $24x + 30 = 3x + 24 + 3$        $21x = -3$       Answer: B

61.  $\overline{MN}$  slope =  $\frac{1}{2}$  parallel = same slope Answer: B

a)  $2x - y = 3$     b)  $x - 2y = 3$     c)  $8x + 4y = 4$     d)  $9x + 18y = -9$   
 $-y = -2x + 3$      $-2y = -x + 3$      $4y = -8x + 4$      $18y = -9x - 9$   
 $y = 2x - 3$      $y = \frac{1}{2}x - \frac{3}{2}$      $y = -2x + 1$      $y = -\frac{1}{2}x - \frac{1}{2}$   
 ↑    ↑    ↑    ↑

62.  $\frac{14c^3d^2 - 21c^2d^3}{14cd} = \frac{14c^3d^2}{14cd} - \frac{21c^2d^3}{14cd} = c^2d - \frac{3cd^2}{2}$  Answer: D

63. slope:  $\frac{\text{rise}}{\text{run}} = \frac{30}{55} = \frac{6}{11}$  Answer: A

64.  $s = ut + \frac{at^2}{2}$      $2(s - ut) = at^2$   
 $2s - 2ut = at^2$     Answer: A  
 $s - ut = \frac{at^2}{2}$      $a = \frac{2s - 2ut}{t^2}$

65.  $V = 1200 - 140t$     Answer: A  
 Depreciate = decline

66.  $5x - 2(7x + 1) = 14x$   
 $5x - 14x - 2 = 14x$     Answer: C  
 $-9x - 2 = 14x$

67.  $f(x) = 4 + 0.25x$     Answer: B  
 $x = \# \text{ of pounds}$

68.  $x = \text{child}$        $3x + 2y = 120$        $5(10) + 1y = 95$   
 $y = \text{adult}$        $(5x + 1y = 95) \cdot 2$        $50 + 1y = 95$       Answer:  
 $3x + 2y = 120$        $1y = 45$       **B**  
 $-10x - 2y = -190$   
 $-7x = -70$       Total: \$55  
 $x = 10$

69.  $3y = 2x - 4$        $y\text{-int: } (0, 3)$        $y = -\frac{3}{2}x + 3$        $2y = -3x + 6$   
 $y = \frac{2}{3}x - \frac{4}{3}$        $y = mx + b$        $2y = 6 - 3x$   
 $\perp m = -\frac{3}{2}$        $2\left(\frac{3}{2}x + y = 3\right)$       Answer:  
 $3x + 2y = 6$       **A**

70. parallel = same slope      Answer: C

71.  $B_1 \neq 1 + B_2 \neq 2 = 5x^2 - 6x$   
 $y + 3x^2 - 2x = 5x^2 - 6x$       Answer: A  
 $-3x^2 + 2x - 3x^2 + 2x$   
 $y = 2x^2 - 4x$

72.  $f(x) = \frac{3-x^2}{3-x}$        $f(2) = \frac{3-(2)^2}{3-2} = \frac{3-4}{1} = -1$       Answer: B

73.  $6x + 5y = 3$        $5x - 6y = 0$        $6x + 5y = 3$        $5x - 6y = 0$   
 $x\text{-int: } 1/2$        $x\text{-int: } 0$        $5y = -6x + 3$        $-6y = -5x$   
 $y\text{-int: } 3/5$        $y\text{-int: } 0$        $y = -\frac{6}{5}x + \frac{3}{5}$        $y = \frac{5}{6}x$

opposite reciprocal slopes = perpendicular      Answer: D

74.  $(4x^2 - 2x + 8) - (x^2 + 3x - 2)$

Answer: D

$$4x^2 - 2x + 8 - 1x^2 - 3x + 2$$

$$3x^2 - 5x + 10$$

75.  $y = 2x - 2$       Answer: A

76.  $y = 5x + 5$       Answer: C

$$C = 5h + 5$$

77.  $4x^3 = 12$        $s = 4w + 2z$       Answer: B

$$34 - 12 = 22$$

78.  $360 = 120 + 60d$

$$240 = 60d$$

Answer: B

$$d = 4 \text{ days}$$

79.  $3x - 2y = 12$        $3x - 2y = 12$        $4(2) - y = 11$       Answer:

$$(4x - y = 11) \cdot 2 \quad \underline{-8x + 2y = -22} \quad 8 - y = 11$$

A

$$-5x = -10$$

$$-y = 3$$

$$x = 2$$

$$y = -3$$

80.  $x^6 x^2 = x^8$       a)  $x^4 x^3 = x^7$

Answer: B

b)  $x^5 x^3 = x^8$

c)  $x^7 x^3 = x^{10}$

d)  $x^9 x^3 = x^{12}$

81.  $x = \text{adult}$   $5x + 2y = 48$  Answer: C  
 $y = \text{student}$   $-3x - 2y = -32$   
 $2x = 10$   
 $x = 8$

82.  $\frac{(2x^2)(8x^0)}{4x^6} = \frac{16x^8}{4x^6} = 4x^2$  Answer: C

83.  $P = \frac{1.2W}{H^2}$   $H^2 = \frac{1.2W}{P}$   $H = \pm \sqrt{\frac{1.2W}{P}}$  Answer: B  
 $H^2 P = 1.2W$   $\sqrt{H^2} = \sqrt{\frac{1.2W}{P}}$

84. Answer: B

85.  $A = Bh$   $h = \frac{35p^6q^6}{5pq^2} = 7p^5q^4$  Answer: A  
 $35p^6q^6 = 5pq^2 h$

86.  $x = \# \text{ of miles}$   $(107, 97.15)$   $\text{stat} \rightarrow \text{calc} \rightarrow 4$  Answer: D  
 $y = \text{cost}$   $(127, 106.15)$   $y = 0.45x + 49$

87. pillows:  $x$   $2x + 5y < 40$   $2(2y) + 5y < 40$   $x = 2(4)$   
 sheets:  $y$   $x = 2y$   $4y + 5y < 40$   $x = 8$   
 $9y < 40$  Answer: D  
 $y < 4.4$

88.  $(15)(25) = 375$  miles    Answer: B

89.  $325x + 15400 = 18000$     Answer: A

90. Answer: C

91.  $n =$  position in sequence    Answer: C

a) $14 = 4(3) + 5$	b) $12 = 4(3) + 5$	c) $17 = 4(3) + 5$	d) $11 = 4(3) + 5$
$14 = 12 + 5$	$12 = 12 + 5$	$17 = 12 + 5$	$11 = 12 + 5$
$14 = 17$	$12 = 17$	$17 = 17$	$11 = 17$
NO.	NO.	yes!	NO!

92.  $\frac{1}{2}x(4x-6) + 3(x^2-1)$

Answer: C

$$2x^2 - 3x + 3x^2 - 3$$
$$= 5x^2 - 3x - 3$$

93. slope =  $\frac{\text{rise}}{\text{run}} = \frac{\text{Gas goes down by 3}}{\text{Distance, increase by 20}}$     Answer: A

94. slope =  $\frac{\text{rise}}{\text{run}} = \frac{15 \text{ sentences}}{10 \text{ minutes}} = \frac{1.5 \text{ sentences}}{\text{min}}$     Answer: C

95.  $y = 5x - 2$     Answer: A

96.  $2x - 5y = 10$       slope =  $\frac{2}{5}$       Answer: B  
 $-5y = -2x + 10$   
 $y = \frac{2}{5}x - 2$

97.  $1.2x + 6 = d$       Answer: A

98.

week	3	4	5	6
Speech (sec)	150	180	210	240
Speech (min)	2.5	3	3.5	4

$y = 0.5x + 1$

$12 = 0.5x + 1$

week 22

Answer: A

$11 = 0.5x$

$x = 22$

99. Garden club:  $10x + 25$        $10x + 25 = 15x$       Answer: A  
 NO CLUB:  $15x$        $25 = 5x$   
 $x = 5$

100.  $(4x^3y^1z^4)(4x^3y^1z^4) = 16x^6y^2z^8$       Answer: C

101.  $t = 0.07m + 25$       Answer: B

102.  $b = 24 - 2s$        $s = \frac{b - 24}{-2}$        $s = \frac{24 - b}{2}$       Answer: D  
 $b - 24 = -2s$        $s = \frac{b - 24}{-2}$        $s = \frac{-b + 24}{2}$