

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
 $M = \text{mads} = y$

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. $3(x-4)^2$
 $3(x-4)(x-4)$
 $3(x^2 - 8x + 16)$
 $3x^2 - 24x + 48$
- $\frac{16}{\times 3}$
 48
- 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. $X = \#$ 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. $f(x) = 10,000 - 1500x$

$x =$ 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 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

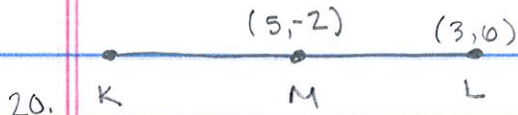
$786 = 31.4r^2$

$V = 262$

$25.08 = r^2$

$h = 10$

$r = 5$



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

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

K:

(-7, -10)

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

$10 = 3+x$

$-4 = 0+y$

Answer:

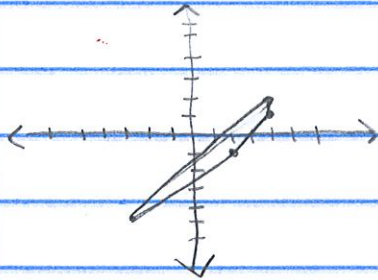
$y_m = \frac{y_1 + y_2}{2}$

$x = 7$

$y = -10$

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 $(0.78)^3 = 0.47 \times 100 = 47\%$

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 \downarrow \downarrow
+2 +2 +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
 $\frac{S - 2\pi r^2}{2\pi r} = \frac{2\pi r l}{2\pi r}$

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

$h^2 B = 703W$

55. $x^2 + 6x = 16$ ~~$\begin{array}{r} -16 \\ 8 \quad -2 \\ 6 \end{array}$~~ $(x+8)=0$ $(x-2)=0$ 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
 $-12x + 21 = 7$

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

58. $x^2 - 7x + 18 = 28$ ~~$\begin{array}{r} -18 \\ -9 \quad 2 \\ -7 \end{array}$~~ $x - 9 = 0$ $x + 2 = 0$ 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
 $b - 24 = -2s$ $s = \frac{-b + 24}{2}$
 $s = \frac{b - 24}{-2}$ $s = \frac{-b + 24}{2}$