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	$200(2)^1 = 400$	$500(1)+400 = 900$
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

$X = 4$

2. $M(t) = -t^2+10t$ Hours to highest = X of vertex
   t = time = X $X = \frac{-10}{2(-1)} = \frac{-10}{-2} = 5$ hours
   M = 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 = rate of decrease $y = 10(2/3)^x$

6. $3(x-4)^2$
   $3(x-4)(x-4)$
   $3(x^2-8x+16)$
   $3x^2-24x+48$

   16
   × 3
   48

   Answer: B

7. Jane = x
Derrek = y

$x = 2y - 1$

$x + y = 11$

$2y - 1 + y = 11$

$3y - 1 = 11$

$3y = 12$

$y = 4$

4 Books

8. x = # of items

$4x \leq 50 - 28$

$4x \leq 22$

$x \leq 5.5$

$4\overline{)22.0}$ = 5.5, -20, 20

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

$1500 \times 5 = 7500$

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

$f(x) = 10000 - 7500$

$f(x) = 2500$

2500 termites

12. $4x + 3 = 0$

$4x = -3$

$x = -3/4$

$6x - 3 = 0$

$6x = 3$

$x = 1/2$

$x = 1/2$

13. x = # of hours

$250x + 750 \leq 2500$

$250x \leq 1750$

$x \leq 7$ hours

$$\begin{array}{r} 24 \\ 2500 \\ -\ 750 \\ \hline 1750 \end{array}$$

$$250\overline{)1750}\quad \begin{array}{r} 7 \\ -1750 \\ \hline 0 \end{array}$$

Answer: 7 hours

14. $f(n) = 0.2n + 80$

n = day of month

$n = 31$

$f(n) = 0.2(31) + 80$

$f(n) = 6.2 + 80$

$f(n) = 86.2$

$$\begin{array}{r} 31 \\ \times\ 0.2 \\ \hline 6.2 \end{array}$$

Answer: 86.2°

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

16. slope: $\frac{-3}{2}$

$y = mx + b$

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

$2 = -4.5 + b$

$6.5 = b$

$2 = \frac{-9}{2} + b$

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

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

$-6.5 = \frac{-3}{2}x$

$-13 = -3x$

$x = \frac{13}{3}$

x-int: $\left(\frac{13}{3}, 0\right)$

17. Enter table into Stat

2nd → Y_3 = → Plot on → ZOOM → 9

Answer: C

18. $Y_1 = -2x + 4$

$Y_2 = (2) \wedge x + 1$

2nd → Trace → 5

Enter × 3

Focus on x-value

$x = 0.69$

Answer: A

19. $B = \pi r^2$

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

$V = 262$

$h = 10$

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

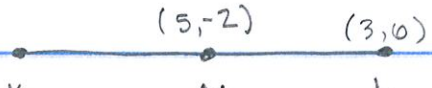
$780 = 31.4 r^2$

$25.08 = r^2$

$r = 5$

Answer: B

20.



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

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

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

$10 = 3 + x$

$x = 7$

$-2 = \frac{6 + y}{2}$

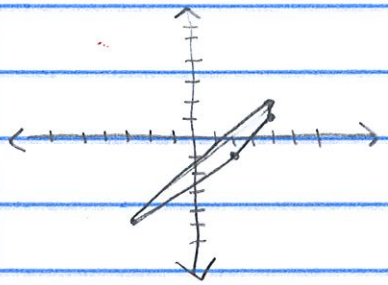
$-4 = 6 + y$

$y = -10$

K: (7, -10)

Answer: C

21.



Answer: C

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

$a = 100$

$r = 0.25$

$t = x$ years

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

$y = 100(1.25)^x$

Answer: C

23.

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

×2 ×2 ×2 ×2 ×2

Multiplication = exponential

Answer: B

24.

	B	G
Leave	20	30
Stay	65	45

"of boys" = total

$\frac{\text{Leave}}{\text{\# of Boys}} = \frac{20}{85} \times 100$

Answer: B

25. $y = 100[(0.78)^3]^x$ Answer: A

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

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 $y = 26.853x - 4.819$ $x = 3$

$y = 26.853(3) - 4.819$

$y = 75.74 \approx 76$

Answer: B

28. s = # of shirts

p = # of pants

at least means $\geq$

at most means $\leq$

$s + p \leq 500$

$s \geq p$

$p \geq 100$

Answer: C

29. $A = LW$

$L = 3x - 2$

$W = 2x + 6$

$(3x-2)(2x+6) = A$

$6x^2 + 18x - 4x - 12 = A$

$6x^2 + 14x - 12 = A$

Answer: B

30. 10, 12, 14, 16 ... (+2, +2, +2)

$f(n) = n + 2$

Next = Now + 2

Answer: A

31. Answer:

B

32. Use pythagorean Theorem to find length & width.

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

$16+16=W^2$

$W^2=32$

$8 \cdot 4$

$4 \cdot 2 \cdot 2 \cdot 2$

$2 \cdot 2$

$W=4\sqrt{2}$

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

$64+64=L^2$

$128=L^2$

$64 \cdot 2$

$8 \cdot 8$

$L=8\sqrt{2}$

$A=LW$

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

$A=32\sqrt{4}$

$A=32(2)$

$A=64$

Answer: C

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

(-2, 3)

$y=mx+b$

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

$3=-1+b$

$b=4$

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

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

$1x-2y=-8$

Answer:

C

34. Answer: A

35. Answer: A

36. Answer:

37. X = # of weeks

$50x+200=650$

$50x=450$

$x=9$ weeks

Answer: A

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

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

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

41. $V(D) = \left(\frac{m}{V}\right)V$ $\frac{VD}{D} = \frac{m}{D}$ 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

$x^2 + 8x + 15 = 0$

$a = 1 \quad b = 8 \quad c = 15$

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. $g(x) = -2x-8$ $\quad h(x) = -3x-8$ $\quad -2 > -3$

$m = -2$ $\quad n = -3$ $\quad m > n$

Answer: B

48. $36y - 81x^2y$

$9y(4-9x^2)$

$9y(2-3x)(2+3x)$

D.O.S.

Answer: B

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

-32, -8, 4, -4

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

Answer: B

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

Answer: D

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

"a" is +, graph opens up

y-int: $(0,-3)$

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

AOS: $x=-1$

Answer: D

52. $y = 2x-2$

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

Answer: A

53. $2x-y<10$

$-1y < -2x+10$

$y > 2x-10$

Dotted line

shade above

slope: 2

y-int: -10

Answer: B

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

$h^2B = 703w$

55. $x^2+6x=16$ $x^2+6x-16=0$ -16, 8, -2, 6 $(x+8)=0$ $(x-2)=0$ $x=-8$ $x=2$ Answer: C

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

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

58. $x^2-7x+10=28$ $x^2-7x-18=0$ -18, -9, 2, -7 $x-9=0$ $x+2=0$ $x=9$ $x=-2$ Answer: B

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

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

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

$x=$ # of pounds

68. x = child $3x + 2y = 120$ $5(10) + 1y = 95$

y = 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-int: (0, 3) $y = -\frac{3}{2}x + 3$ $2y = -3x + 6$

$y = \frac{2}{3}x - \frac{4}{3}$ $y = mx + b$ $2y = 6 - 3x$

$2\left(\frac{3}{2}x + y = 3\right)$

$\perp m = -\frac{3}{2}$ Answer:

$3x + 2y = 6$ A

70. parallel = same slope Answer: C

71. Bi #1 + Bi #2 = $5x^2 - 6x$

$y + 3x^2 - 2x = 5x^2 - 6x$ Answer: A

$-3x^2 + 2x \quad -3x^2 + 2x$

$y = 2x^2 - 4x$

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-int: 1/2 x-int: 0 $5y = -6x + 3$ $-6y = -5x$

y-int: 3/5 y-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. $4\times3=12$ $S=4W+22$ Answer: B

$34-12=22$

78. $360=120+60d$

$240=60d$ Answer: B

$d=4$ days

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

$(4x-y=11)\cdot2$ $-8x+2y=-22$ $8-y=11$

$-5x=-10$ $-y=3$

$x=2$ $y=-3$

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

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

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

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

81. x = adult $\quad 5x+8y=48$ $\quad$ Answer: C

y = student $\quad -3x-2y=-32$

$2x=16$

$x=8$

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

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

$H^2P=1.2W$ $\quad \sqrt{H^2}=\sqrt{\frac{1.2W}{P}}$

84. Answer: B

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

$35p^6q^6=5pq^2h$

86. x = # of miles $\quad (107, 97.15)$ $\quad$ stat → calc → 4 $\quad$ Answer: D

y = cost $\quad (127, 106.15)$ $\quad y=0.45x+49$

87. Pillows: x $\quad 2x+5y<40$ $\quad 2(2y)+5y<40$ $\quad x=2(4)$

Sheets: y $\quad x=2y$ $\quad 4y+5y<40$ $\quad x=8$

$9y<40$ $\quad$ 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) $14 = 4(3)+5$
$14 = 12+5$
$14 = 17$
NO.

b) $12 = 4(3)+5$
$12 = 12+5$
$12 = 17$
NO.

c) $17 = 4(3)+5$
$17 = 12+5$
$17 = 17$
yes!

d) $11 = 4(3)+5$
$11 = 12+5$
$11 = 17$
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

$b-24=-2s$

$s=\frac{b-24}{-2}$ $s=\frac{-b}{2}+\frac{24}{2}$