Trig Midterm Review 2013-14

Name _____

_____1. Simplify $(x+1)(x^2 + 2x + 3)$

A. $x^3 + x^2 + 2x + 3$ B. $x^3 + 3x^2 + 5x + 3$

C. $x^3 + x^2 + 5x + 3$ D. $x^3 + 3x^2 + 2x + 3$

_____2. Simplify $2(2n + 4) – (6n – 2)$

A. $-2n + 10$ B. $-2n – 10$ C. $2n – 10$ D. $2n + 10$

_____3. Simplify $(n – 5)^2$

A. $n^2 + 25$ B. $n^2 - 25$ C. $n^2 + 10n + 25$ D. $n^2 – 10n + 25$

_____4. Simplify $(2n^3 + 5n)(4n^3 + 2n)$

A. $8n^6 + 24n^4 + 10n^2$ B. $8n^9 + 24n^4 + 10n^2$

C. $8n^6 + 20n^3 + 10n$ D. $8n^9 + 24n^3 + 10n^2$

_____5. Simplify $(n^3)^3$

A. n^6 B. n^9 C. $2n^3$ D. $2n^9$

_____6. Simplify $(x + 2)(x + 2)(x + 2)$

A. $x^3 + 8$ B. $x^3 + 6x^2 + 4x + 12$

C. $x^3 + 6x^2 + 12x + 8$ D. $x^3 + 8x^2 + 12x + 8$

_____7. Simplify $\sqrt{-40}$

A. $2\sqrt{10}$ B. $2i\sqrt{10}$ C. $4i\sqrt{10}$ D. $10i\sqrt{2}$

_____8. Simplify $\sqrt{20a^5y^{10}}$

A. $2a^2y^5\sqrt{5a}$ B. $5ay^5\sqrt{2a}$ C. $2ay^5\sqrt{5a}$ D. $5ay^5\sqrt{2ay}$

_____9. Simplify $\sqrt[4]{x^4y^{10}}$

A. $xy^3\sqrt[4]{xy}$ B. $xy\sqrt[4]{xy^2}$ C. $xy^3\sqrt[4]{y}$ D. $xy^2\sqrt[4]{y^2}$

_____10 Solve by factoring: $x^2 – x – 20 = 0$

A. $x = -5$ or $x = 4$ B. $x = 5$ or $x = -4$

C. $x = 5$ or $x = 4$ D. $x = -5$ or $x = -4$

_____11. Simplify $(a^4n^3x^6)(a^2n^3x^6)$

A. $a^8n^6x^{12}$ B. $a^6n^9x^{12}$ C. $a^6n^6x^{36}$ D. $a^6n^6x^{12}$

_____12. Simplify $\sqrt{-80a^2}$

A. $4a\sqrt{5}$ B. $2ai\sqrt{10}$ C. $4ai\sqrt{5}$ D. None of the above

_____13. **Solve** by factoring: $2x^2 + 19x + 9 = 0$

A. x = 9 or x = ½ B. x = 9 or x = - ½

C. x = -9 or x = ½ D. x = -9 or x = - ½

_____14. Simplify $\sqrt{120}$

A. 60 B. $2\sqrt{30}$ C. $2\sqrt{40}$ D. $4\sqrt{10}$

_____15. Factor $x^2 + x - 30$

A. (x + 6)(x – 5) B. (x – 6)(x + 5) C. (x – 10)(x + 3) D. None of the above

_____16. Simplify $\dfrac{4 \pm \sqrt{-40}}{2}$

A. $2 \pm i\sqrt{10}$ B. $2 \pm 2i\sqrt{10}$ C. $2 \pm i\sqrt{20}$ D. $2 \pm 2i$

_____17. Solve for n: $4(2n - 3) + 2(2n - 1) = 10$

A. n = -4 B. n = $\dfrac{1}{2}$ C. n = -2 D. n = 2

_____18. Simplify $\dfrac{9 \pm \sqrt{18}}{3}$

A. $3 \pm i\sqrt{3}$ B. $3 \pm i\sqrt{2}$ C. $3 \pm \sqrt{3}$ D. $3 \pm \sqrt{2}$

_____19. Solve for n: $4(2n + 5) + 2(3n + 5) = 10n + 22$

A. n = -4 B. n = $\dfrac{1}{2}$ C. n = -2 D. n = 2

_____20. Simplify $(x + 1)(x - 1)(x + 3)(x - 3)$

A. $x^4 - 10x^2 + 9$ B. $x^4 - 3x^2 + 9$ C. $x^4 - 6x^2 + 9$ D. $x^4 - 6x^2 + 6$

_____21. Simplify $(2n^3y^4)^2 + n(n^5)y^8$

A. $5n^6y^8$ B. $3n^6y^8$ C. $5n^3y^4$ D. $8n^{12}y^{16}$

_____22. Simplify $(3n^2y^4)^2 + n(n^4)y^3y^5$

A. $10n^4y^8$ B. $10n^5y^8$ C. $7n^5y^8$ D. None of the above

_____23. Simplify $\dfrac{4a^2c^4}{6ac^5}$

A. $-\dfrac{2a}{3c}$ B. $\dfrac{4a}{6c}$ C. $\dfrac{2a}{3c}$ D. None of the above

_____24. Simplify $\dfrac{a^4b^{10}c^5}{ab^8c^7}$

A. $\dfrac{a^3b^2}{c}$ B. $\dfrac{ab^2}{c^2}$ C. $\dfrac{a^3}{b^2c^2}$ D. None of the above

_____25. Simplify $\frac{n^2+4n+3}{n^2+7n+12}$

A. $\frac{n+3}{n+4}$ B. $\frac{1}{n+4}$ C. $\frac{1}{3n+4}$ D. $\frac{n+1}{n+4}$

_____26. Simplify $\frac{n^2-16}{n^2+n-20}$

A. $\frac{n-4}{n-5}$ B. $\frac{n+4}{n-5}$ C. $\frac{n+4}{n+5}$ D. Doesn't simplify

_____27. Simplify $\frac{n^2+9n-10}{n^2-3n-4}$

A. $\frac{n+10}{n+4}$ B. $\frac{n+10}{n-4}$ C. $\frac{n+6n-6}{1}$ D. Doesn't simplify

_____28. Perform the following division $n+4\overline{)n^2+5n-2}$

A. $n+9+\frac{-34}{n+4}$ B. $n+1+\frac{-2}{n+4}$ C. $n+1+\frac{-6}{n+4}$ D. $n+9+\frac{38}{n+4}$

_____29. Perform the following division $n-2\overline{)n^2+3n+1}$

A. $n+5+\frac{11}{n-2}$ B. $n+5+\frac{9}{n-2}$ C. $n+1+\frac{1}{n-2}$ D. $n+1+\frac{-3}{n-2}$

_____30. $\left(\frac{2}{3}\right)^{-3}$ **NO CALCULATOR ALLOWED!**

A. $\frac{6}{27}$ B. $\frac{8}{27}$ C. $\frac{27}{8}$ D. $-\frac{8}{27}$

_____31. Simplify $\left(\frac{n^2y^{-2}}{a^{-4}}\right)^2$

A. $\frac{n^4y^4}{a^{16}}$ B. $\frac{n^4y^4}{a^8}$ C. $\frac{n^4a^{16}}{y^4}$ D. $\frac{n^4a^8}{y^4}$

_____32. Simplify $\left(-2a^{-3}\right)^{-2}$

A. $\frac{4}{a^6}$ B. $4a^6$ C. $\frac{a^6}{4}$ D. $\frac{a^5}{4}$

_____33. Simplify $\left(\frac{2a^3}{5b^2}\right)^{-2}$

A. $\frac{25b^4}{4a^6}$ B. $\frac{4b^4}{25a^6}$ C. $\frac{25a^6}{4b^4}$ D. $\frac{25a^6b^4}{4}$

_____34. Simplify $\left(a^{-3}b^{-2}\right)^2$

A. $\frac{-1}{a^6b^4}$ B. $\frac{a^6}{b^4}$ C. $\frac{1}{a^6b^4}$ D. a^6b^4

_____35. Factor $16a^4b^2 + 20ab^5$

A. $ab^2(16a^3 + 20b^3)$ B. $ab(16a^3b + 20b^4)$
C. $4ab^2(4a^3 + 5b^3)$ D. None of the above

_____36. Factor $8n^3 + 27y^3$

A. $(2n + 3y)(4n^2 + 6ny + 9y^2)$ B. $(2n + 3y)(4n^2 – 6ny + 9y^2)$
C. $(2n – 3y)(4n^2 + 6ny + 9y^2)$ D. $(2n + 3y)(4n^2 – 6ny – 9y^2)$

_____37. Factor $n^3 + 8$

A. $(n + 2)(n^2 + 2n + 4)$ B. $(n + 2)(n^2 – 2n + 4)$
C. $(n – 4)(n^2 + 4n + 2)$ D. $(n + 4)(n^2 – 4n + 2)$

_____38. Factor $3n^3 + 12n^2 + 2n + 8$

A. $(n + 2)(3n^2 + 4)$ B. $(3n + 4)(n^2 + 2)$
C. $(3n + 2)(n^2 + 4)$ D. $(n + 4)(3n^2 + 2)$

_____39. Factor $y^5 + 3y^3 + 4y^2 + 12$

A. $(y^2 + 4)(y^3 + 3)$ B. $(y^2 + 3)(y^3 + 4)$ C. $(y^4 + 3)(y + 4)$ D. $(y + 3)(y^5 + 4)$

_____40. Factor $n^3 + 2n – n^2 – 2$

A. $(n^2 – 1)(n + 2)$ B. $(n^2 + 2)(n – 1)$
C. $(n^2 + 1)(n – 2)$ D. $(n^2 – 2)(n + 1)$

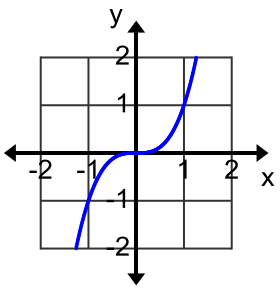
_____41. Factor $8n^3 + 125$

A. $(2n + 5)(4n^2 + 10n + 25)$ B. $(2n – 5)(4n^2 + 10n + 25)$
C. $(2n + 5)(4n^2 – 10n + 25)$ D. $(2n – 5)(8n^2 + 10n + 25)$

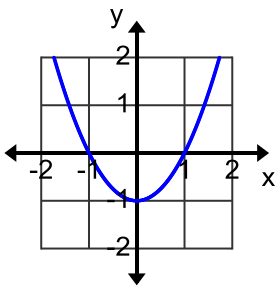
_____42. Which set of points would be a function?

A. (2, 6), (3, 4), (2, 10) B. (1, 1), (2, 2) (1, 3)
C. (1, 9), (2, 9), (5, 9) D. None are functions

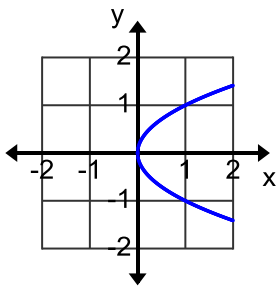
_____43. Which graph below is not a function?



A.



B.



C.

_____44. If $f(x) = 2x^2 - 4$, what is f(2)?

A. 2 B. 4 C. 8 D. 12

_____45. If $f(x) = -2x - 5$, what is f(-3)?

A. 1 B. 2 C. 4 D. -11

_____46. If $f(x) = 3x - 1$ and $g(x) = 2x - 1$, what is f(g(2))?

A. 8 B. 9 C. 14 D. 13

_____47. If $f(x) = 3x - 10$ and $g(x) = 2x + 1$, what is f(g(x))?

A. $6x - 19$ B. $6x - 13$ C. $6x + 13$ D. $6x - 7$

_____48. What is the domain of $f(x) = \sqrt{x-3}$?

A. $x \neq 3$ B. $x > 3$ C. $x \geq 3$ D. None of the above

_____49. What is the domain of $f(x) = \frac{x^3}{x-3}$?

A. $x \neq 3$ B. $x > 3$ C. $x \geq 3$ D. None of the above

_____50. What is the domain of $f(x) = \frac{x^3 + 4x - 1}{\sqrt{x}}$?

A. $x \leq 0$ B. $x \neq 0$ C. $x > 0$ D. $x \geq 0$

_____51. What is the domain of $f(x) = x^2 - 9$?

A. $x \neq 3$ B. $\mathbb{R}$ C. $x \geq 3$ D. $x > 3$

_____52. $\sum_{n=-2}^{1} 2n - 1$?

A. -10 B. -9 C. -8 D. -6

_____53. What is the slope from (1, 4) to (3, 10)?

A. 6 B. 2 C. 3 D. -2

_____54. What is the slope from (n, 6) to (n + 2, 7)?

A. 1 B. $\frac{1}{2}$ C. 0 D. 2

_____55. What is the distance from (-3,-2) to (1, -6)?

A. $4\sqrt{2}$ B. $3\sqrt{2}$ C. $2\sqrt{3}$ D. $2\sqrt{2}$

_____56. What is the distance from (n, 3) to (n + 2, 7)?

A. $2\sqrt{5}$ B. $5\sqrt{2}$ C. $5\sqrt{3}$ D. $3\sqrt{2}$

_____57. Which equation below is not in standard form?

A. $3x - y = 5$ B. $4x + y = -3$ C. $-2x + y = 9$ D. $x - y = -1$

_____58. What is the inverse of $f(x) = 3x - 5$?

A. $y = \frac{x+5}{3}$ B. $y = \frac{x+3}{5}$ C. $y = \frac{x}{3} + 5$ D. $y = \frac{x-3}{5}$

_____59. Which is the equation of the line with a slope of 4 and that goes through (2, 5)?

A. y = -4x – 3 B. y = 4x – 3 C. y = 4x + 3 D. y = -4x + 3

_____60. Which is the equation of the line that goes through (1, 4) and (3, 10)?

A. y = 3x – 2 B. y = 3x + 2 C. y = 3x + 10 D. y = 3x + 1

_____61. Which is the equation that is parallel to y = 3x – 5 and goes through (3, 4)?

A. y = 3x – 1 B. y = 3x – 2 C. y = 3x + 1 D. y = 3x – 5

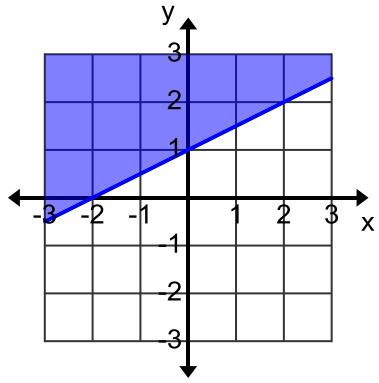
_____62. Which is the equation that is perpendicular to y = -2x + 4 and goes through (4, 1)?

A. $y = \frac{1}{2}x + 1$ B. $y = 2x - 7$ C. $y = -\frac{1}{2}x + 1$ D. $y = \frac{1}{2}x - 1$

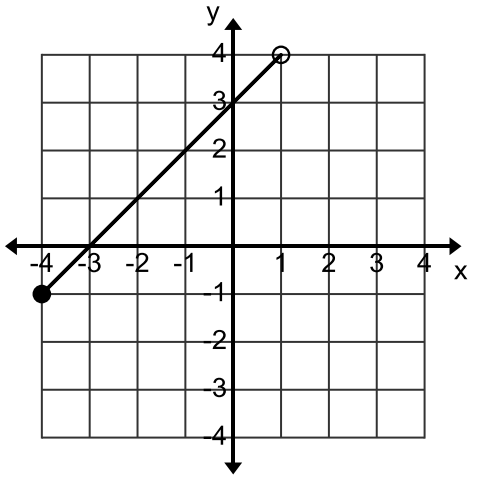
_____63. Which is the equation that is parallel to y = 5x – 2 and goes through (1, 1)?

A. 5x – y = 4 B. 5x – 2y = 3 C. 5x + y = 6 D. -5x – y = -6

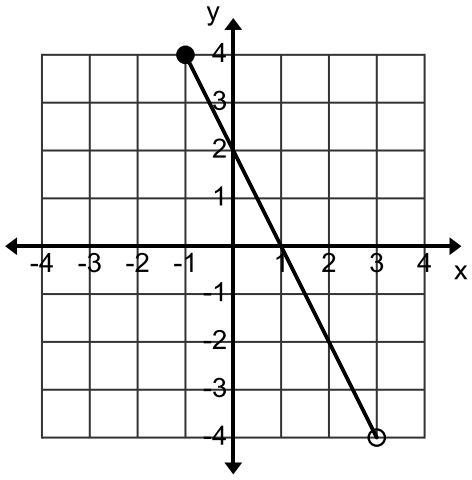
_____64. What inequality is graphed below?



A. $y = \frac{1}{2}x + 1$ B. $y \geq \frac{1}{2}x + 1$ C. $y < \frac{1}{2}x + 1$ D. $y > \frac{1}{2}x + 1$



I



II

_____65. What is the **domain** of the graph I above?
A. $\mathbb{R}: -1 < x \leq 4$ B. $\mathbb{R}: -1 \leq x < 4$ C. $\mathbb{R}: -4 < x \leq 1$ D. $\mathbb{R}: -4 \leq x < 1$

_____66. What is the **range** of the graph I above?
A. $\mathbb{R}: -1 < y \leq 4$ B. $\mathbb{R}: -1 \leq y < 4$ C. $\mathbb{R}: -4 < y \leq 1$ D. $\mathbb{R}: -4 \leq y < 1$

_____67. What is the **domain** of the graph II above?
A. $\mathbb{R}: -1 < x \leq 3$ B. $\mathbb{R}: -1 \leq x < 3$ C. $\mathbb{R}: -4 < x \leq 4$ D. $\mathbb{R}: -4 \leq x < 4$

_____68. What is the **range** of the graph II above?
A. $\mathbb{R}: -1 < y \leq 3$ B. $\mathbb{R}: -1 \leq y < 3$ C. $\mathbb{R}: -4 < y \leq 4$ D. $\mathbb{R}: -4 \leq y < 4$

_____69. What is the equation of the line in standard form that is parallel to $y = 8x - 5$ and passes through the point (1, 20).
A. $8x + y = 12$ B. $8x - y = -12$ C. $12x - y = -8$ D. $8x - 12 = y$

_____70. Give the equation of the line in standard form that is perpendicular to $5x - 4y = 2$ and passes through the point (6, 7).
A. $4x - 5y = -11$ B. $5x + 4y = 58$ C. $4x + 5y = 59$ D. $7x + 2y = 53$

A. $\begin{cases} y = 3x - 5 \\ y = 2x - 1 \end{cases}$ B. $\begin{cases} y = 3x - 1 \\ y + x = 15 \end{cases}$ C. $\begin{cases} 2x + 3y = 8 \\ 4x + 2y = 12 \end{cases}$ D. $\begin{cases} 2x - y = 8 \\ 3x + y = 12 \end{cases}$ E. $\begin{cases} 5x - 2y = 2 \\ 3x - 3y = -15 \end{cases}$

_____71. What is the value of y in System A above.
A. y = 11 B. y = 7 C. y = 6 D. None of the above

_____72. What is the value of y in System B above.
A. y = 10 B. y = 4 C. y = 6 D. None of the above

_____73. What is the value of y in System C above.
A. y = 1 B. y = 2 C. y = 7 D. None of the above

_____74. What is the value of y in System D above.
A. y = 1 B. y = 4 C. y = 2 D. None of the above

_____75. What is the value of y in System E above.
A. y = -9 B. y = 0 C. y = -8 D. None of the above

$A = \begin{bmatrix} 2 & 3 \\ 2 & 4 \end{bmatrix}$ $B = \begin{bmatrix} 3 & -2 \\ -1 & -4 \end{bmatrix}$ $C = \begin{bmatrix} 2 & 3 \\ 5 & 9 \end{bmatrix}$ $D = \begin{bmatrix} 2 & 3 & 1 \end{bmatrix}$ $E = \begin{bmatrix} 3 \\ 4 \\ 2 \end{bmatrix}$

_____76. What is the A + B? **NO CALCULATOR ALLOWED!**
A. -2 B. 4 C. 2 D. None of the above

_____77. What is 3A? **NO CALCULATOR ALLOWED!**

A. $\begin{bmatrix} 6 & 9 \\ 6 & 12 \end{bmatrix}$ B. $\begin{bmatrix} 6 & 9 \\ 6 & 15 \end{bmatrix}$ C. $\begin{bmatrix} 6 & 9 \\ 8 & 12 \end{bmatrix}$ D. None of the above

_____78. What is AB? **NO CALCULATOR ALLOWED!**

A. $\begin{bmatrix} 3 & -8 \\ 2 & -20 \end{bmatrix}$ B. $\begin{bmatrix} 3 & -16 \\ 2 & -12 \end{bmatrix}$ C. $\begin{bmatrix} 6 & -6 \\ -2 & -16 \end{bmatrix}$ D. None of the above

_____79. What is BC? **NO CALCULATOR ALLOWED!**

A. $\begin{bmatrix} 2 & 1.5 \\ -1 & 1 \end{bmatrix}$ B. $\begin{bmatrix} 2 & .5 \\ 1 & -1 \end{bmatrix}$ C. $\begin{bmatrix} 2 & 1.5 \\ -1.5 & 1 \end{bmatrix}$ D. $\begin{bmatrix} 2 & -1.5 \\ -1 & 1 \end{bmatrix}$

_____80. What is DE? **NO CALCULATOR ALLOWED!**

A. $\begin{bmatrix} 8 \end{bmatrix}$ B. $\begin{bmatrix} 18 \end{bmatrix}$ C. $\begin{bmatrix} 20 \end{bmatrix}$ D. None of the above

_____81. In regard to the matrices above, does DE=ED? **NO CALCULATOR ALLOWED!**

A. Yes B. No C. Not possible to determine

_____82. What is the perpendicular slope to the line y = -2x + 4?
A. – ½ B. 2 C. ½ D. -2

_____83. Consider the line 4x + 2y = 9. What is the slope of the line parallel to this line?
A. – ½ B. 2 C. ½ D. -2

_____84. In interval notation, what is x > 3?
A. $(3,\infty)$ B. $[3,\infty)$ C. $(-\infty,3)$ D. $(-\infty,3]$

_____85. In interval notation, what is x < 3?
A. $(3,\infty)$ B. $[3,\infty)$ C. $(-\infty,3)$ D. $(-\infty,3]$

_____86. In interval notation, what is $x \leq 3$?
A. $(3,\infty)$ B. $[3,\infty)$ C. $(-\infty,3)$ D. $(-\infty,3]$

_____87. In interval notation, what is $2 < x \leq 5$?
A. $(2,5)$ B. $[2,5)$ C. $[2,5]$ D. $(2,5]$

_____88. What is the domain of f(x) = $\sqrt{x+6}$?
A. $x \neq -6$ B. $x > -6$ C. $x \geq -6$ D. $\mathbb{R}$

_____89. What is the domain of f(x) = $\frac{2x}{2x-6}$?
A. $x \neq 3$ B. $x > 3$ C. $x \geq 3$ D. $\mathbb{R}$

_____90. What is the domain of f(x) = $\sqrt{10-x}$?
A. $x \neq 10$ B. $x \leq 10$ C. $x \geq 10$ D. $\mathbb{R}$

_____91. What is the domain of f(x) = $\sqrt{-2x+4}$?
A. $x \neq 2$ B. $x \leq 2$ C. $x \geq 2$ D. $\mathbb{R}$

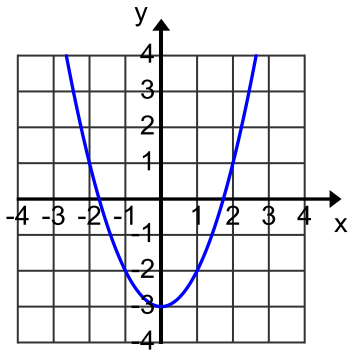
_____92. Simplify 5n – (2n – 4) – (n + 1)
A. 2n + 3 B. 2n + 5 C. 2n – 3 D. 2n – 5

_____93. If A is a 4 x 5 matrix, B a 3 x 3 matrix, and C a 3 x 5 matrix, what type of matrix would A + C be?
A. 4 x 5 B. 4 x 3 C. 5 x 5 D. They can't be added

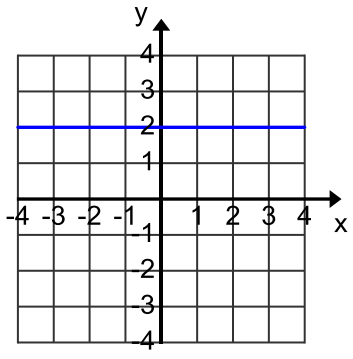
_____94. If A is a 4 x 5 matrix, B a 3 x 3 matrix, and C a 4 x 5 matrix, what type of matrix would A + C be?
A. 4 x 5 B. 4 x 3 C. 5 x 5 D. They can't be added

_____95. If A is a 4 x 5 matrix, B a 4 x 3 matrix, and C a 3 x 5 matrix, what matrices could be multiplied?
A. A and B B. A and C C. B and C D. All of them could be

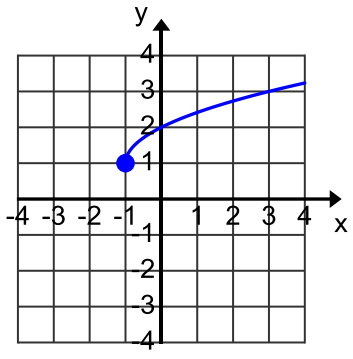
Graph 1



Graph 2



Graph 3



_____96. What is the domain of graph 1 above?
A. $x > -3$ B. $x < -3$ C. $x \geq -3$ D. $\mathbb{R}$

_____97. What is the range of graph 1 above?
A. $y > -3$ B. $y < -3$ C. $y \geq -3$ D. $\mathbb{R}$

_____98. What is the domain of graph 2 above?
A. $x > 2$ B. $x = 2$ C. $x \geq 2$ D. $\mathbb{R}$

_____99. What is the domain of graph 3 above?
A. $x \geq -1$ B. $x < -1$ C. $x \geq 1$ D. $\mathbb{R}$

_____100. What is the range of graph 3 above?
A. $y \geq -1$ B. $y < -1$ C. $y \geq 1$ D. $\mathbb{R}$

_____101. $\sum_{n=-2}^{0} n^2$?
A. -1 B. 5 C. 8 D. 0

_____102. $\sum_{n=-2}^{3} 2-n$?
A. 9 B. 11 C. 12 D. 13

_____103. From the 40 shirts I have, I must pick 5 to plan out my week of teaching. How many different looks would I have next week?
A. 65,800 B. 658,008 C. 78,960,960 D. 789,609,600

_____104. From the 20 kids in the class, I must pick 2 to represent my homeroom as Class Officers. How many possibilities exist?
A. 80 B. 190 C. 380 D. 720

_____105. If a student body has 82 students, in how many different ways could the class elect a President, Vice President, and Secretary?
A. 72,000 B. 88,560 C. 322,240 D. 531,360

_____106. I have a safe in my house that has a key pad on it with the digits 0 – 9 on it. If my combination is a 5 digit code, how many possible combinations exist?

A. 252 B. 67,000 C. 100,000 D. 212,540

_____107. Old VA license plates used to be 3 letters followed by 3 numbers. How many license plates could the state make in this manner?

A. Between 1 – 100,000 B. Between 100,001 – 1,000,000
C. Between 1,000,001- 20,000,000 D. Over 20,000,000

_____108. How many 5 card hands can be dealt from a deck of cards? (For you non-card people, there are 52 cards in a deck.)

A. Between 1 – 1,000,000 B. Between 1,000,001 – 5,000,000
C. Between 5,000,001 – 10,000,000 D. Over 10,000,000

_____109. There are 10 girls and 8 boys up for the "Hickam Award." In how many ways can 2 girls and 3 boys be selected to receive this prestigious award?

A. 101 B. 212 C. 2520 D. 3620

_____110. Simplify $\sqrt[4]{a^8b^2c^{13}}$

A. $ac^3\sqrt[4]{b^2c}$ B. $a^2c^3\sqrt[4]{b^2c}$ C. $a^2bc^3\sqrt[4]{c}$ D. $a^2c^2\sqrt[4]{b^2c^2}$

_____111. Solve $x^3 + 6x^2 + 5x = 0$

A. x = 0 or x = -3 or x = -2 B. x = 0 or x = 5 or x = 1
C. x = 0 or x = -5 or x = -1 D. x = 0 or x = 3 or x = 2

_____112. What is the domain of y = x – 4?

A. x > 4 B. $x \neq 4$ C. x < 4 D. $\mathbb{R}$

_____113. If f(x) = 2x and g(x) = 5x + 10, what is f(g(x))?

A. 10x + 10 B. 10x + 20 C. 20x + 10 D. 10x – 10

_____114. What is the inverse of $f(x) = x^2 - 5$?

A. $y = \pm\sqrt{x+5}$ B. $y = \pm\sqrt{x-5}$ C. $y = \pm\sqrt{5x}$ D. y = 5x – 5

_____115. What is the distance from (2, n) to (4, n + 2)?

A. $\sqrt{18}$ B. $2n$ C. $\sqrt{8}$ D. $n\sqrt{8}$

_____116. What would the slope of the line that is perpendicular to 2x – 4y = 10 be?

A. 2 B. -2 C. ½ D. – ½

_____117. Which equation below is the quadratic equation?

A. $x = \dfrac{b \pm \sqrt{b^2 - 4ac}}{2a}$ B. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2c}$ C. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

_____118. Factor $a^3 + 4a + 5a^2 + 20$

A. $(a^2 + 4)(a + 5)$ B. $(a^2 + 5)(a + 4)$ C. $(2a^2 + 5)(a + 4)$ D. None of the above

_____119. Factor $5a^2 + 10a^3$

A. $5(a^2 + 2a)$ B. $5a(a + 2a^2)$ C. $5a^2(2a)$ D. $5a^2(1 + 2a)$

_____120. What is the approximate distance from (1, 4) and (3, 10)?
A. 6.3 B. 7.8 C. 11.2 D. None of the above

_____121. What is the approximate distance from (1, 5) and (-4, -5)?
A. 6.3 B. 11.2 C. 13.1 D. None of the above

_____122. What is the midpoint between (1, 4) and (3, 10)?
A. (2, 7) B. (4, 14) C. (1, 3) D. None of the above

_____123. What is the midpoint between (1, 5) and (-4, -5)
A. (-1.5, 5) B. (0, 5) C. (-3, 0) D. None of the above

_____124. What is the slope from (2, n) and (4, n + 6)?
A. 2 B. 3 C. 4 D. None of the above

_____125. What is the midpoint between (2, n) and (4, n + 4)?
A. (6, n + 4) B. (3, n + 2) C. (3, n + 4) D. None of the above

_____126. What is the approximate distance from (2, n) and (4, n + 8)?
A. 7.2 B. 8.2 C. 9.2 D. None of the above

_____127. Which equation below is **not** in standard form?
A. $3x - y = 5$ B. $4x + y = -3$ C. $-2x + y = 9$ D. $x - y = -1$

_____128. Find the equation of the line, in slope intercept form,
that goes through the point (2, -1) and (3, -9)
A. $y = -8x - 12$ B. $y = -10x + 12$ C. $y = -8x + 12$ D. None of the above

_____129. What is the equation of the line, in slope intercept form,
that goes through the point (8, 4) and has a slope of -1.
A. $y = -x - 8$ B. $y = -x + 4$ C. $y = -x + 12$ D. None of the above

_____130. Give the equation of the line in standard form that is perpendicular
to $y = -4x - 5$ and passes through the point (-8, 2).
A. $x - 4y = -16$ B. $2x + 4y = -8$ C. $x + 8y = 8$ D. None of the above

_____131. Which equation below is **not** in slope intercept form?
A. $y = -2x + 6$ B. $y = ½ x - 5$ C. $-y = 2x + 6$ D. $y = 4x$

_____132. Give the equation of the line in standard form that is parallel to
$12x + 2y = 8$ and passes through the point (-1, 2).
A. $6x - y = -8$ B. $6x + y = -4$ C. $6x - 2y = -10$ D. None of the above

_____133. $\sum_{n=3}^{5} n^2$
A. 30 B. 40 C. 45 D. None of the above

_____134. $\sum_{n=2}^{4} (2^n - 10)^n$
A. 1232 B. 1324 C. 1346 D. None of the above

_____135. $\frac{96!}{94!4!}$

A. 96 B. 360 C. 480 D. None of the above

_____136. $\frac{76!}{74!3!}$

A. 450 B. 950 C. 1050 D. None of the above

_____137. $\frac{215!}{213!}$

A. 23,220 B. 46, 010 C. 52,300 D. None of the above

_____138. My password to log on to my computer can be any letter or digit. If I have a passcode that is 3 characters long, how many possibilities for a passcode are there?

A. 4,666 B. 7,140 C. 71,400 D. 46,656

_____139. A zip code is a 5 digit number that the post office uses to help deliver the mail. How many zip codes exist if the first and last digit cannot be a 0?

A. 252 B. 72,000 C. 81,000 D. 100,000

_____140. From my 10 cousins, I need to pick two of them to help with decorating for my surprise 40th Birthday party. How many different ways could I pick the two?

A. 45 B. 60 C. 90 D. None of the above

_____141. From the 10 different color swatches that my wife picked for the new colors of what she wants, me to paint the bedroom, I must pick three. In how many different ways could I pick the three?

A.120 B. 720 C. 7,600 D. 76,000

_____142. How many different ways can one answer a 10 question multiple choice test that has options A, B, C, and D?

A. 210 B. 2520 C. 5040 D. None of the above

_____143. Pizza Boy offers a large 3 topping pizza for $13.99 If they have 20 toppings from which you can choose, how many different possibilities can you make assuming you choose 3 different toppings?

A. 1140 B. 6840 C. 9240 D. None of the above

_____144. Perform the following division $n+2\overline{)n^2+5n+2}$

A. $n+3+\frac{8}{n+2}$ B. $n+3+\frac{-4}{n+2}$ C. $n+7+\frac{-12}{n+4}$ D. $n+7+\frac{16}{n+4}$

_____145. Perform the following division $n-5\overline{)n^2+n-1}$

A. $n+6+\frac{29}{n-5}$ B. $n+6+\frac{-31}{n-5}$ C. $n-4+\frac{-21}{n-5}$ D. $n-4+\frac{19}{n-5}$

_____146. Simplify $(x-1)(x^2+2x+3)$

A. x^3+x^2+x-3 B. x^3+2x^2+x-3

C. x^3+x^2-x-3 D. x^3+x^2+2x-3

_____147. Simplify $2(2n-4)-(6n-2)$

A. $-2n-10$ B. $-2n-6$ C. $2n-10$ D. None of the above

_____148. Simplify $(n+5)^2$

A. n^2+25 B. n^2+10 C. $n^2+10n+25$ D. $n^2+10n+10$

_____149. Simplify $(2n^3)^3$

A. $6n^6$ B. $6n^9$ C. $8n^6$ D. $8n^9$

_____150. Simplify $\sqrt{20a^3y^{10}}$

A. $2ay^5\sqrt{5ay}$ B. $5ay^5\sqrt{2a}$ C. $2ay^5\sqrt{5a}$ D. $5ay^5\sqrt{2ay}$

_____151. Simplify $\sqrt[3]{x^4y^{10}}$

A. $xy^4\sqrt[3]{xy}$ B. $xy^3\sqrt[3]{xy^2}$ C. $xy^3\sqrt[3]{xy}$ D. $xy\sqrt[3]{y}$

_____152. Perform the following division $n-2\overline{)n^2+3n-1}$

A. $n+5+\frac{-11}{n-2}$ B. $n+5+\frac{9}{n-2}$ C. $n+1+\frac{1}{n-2}$ D. $n+1+\frac{-3}{n-2}$

_____153. Simplify $\left(2a^{-3}\right)^{-2}$

A. $\frac{4}{a^6}$ B. $4a^6$ C. $\frac{a^6}{4}$ D. $\frac{a^5}{4}$

_____154. Simplify $\left(a^{-3}b^{-2}\right)^{-2}$

A. $\frac{-1}{a^6b^4}$ B. $\frac{a^6}{b^4}$ C. $\frac{1}{a^6b^4}$ D. a^6b^4

_____155. $\sum_{n=1}^{3}(2^n)^n$

A. 522 B. 528 C. 530 D. 542

_____156. $\frac{100!3!}{99!4!}$

A. 18 B. 24 C. 25 D. 36

_____157. On a quiz, there are 5 True/False questions and 5 multiple choice questions with options of A, B, or C. How many different ways can the quiz be answered?

A. 3,125 B. 7,776 C. 6,257,000 D. 9,765,625