Trig 2nd 6-weeks Review 2013-14
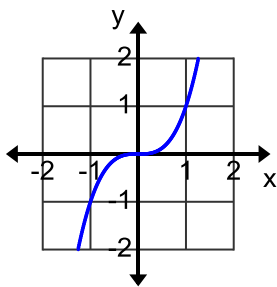
Name _____

_____1.   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. $x^3 + x^2 + 2x - 3$

_____2.   Simplify $2(2n - 4) - (6n - 2)$
A. $-2n - 10$ B. $-2n - 6$ C. $2n - 10$ D. None of the above

_____3.   Simplify $(n + 5)^2$
A. $n^2 + 25$ B. $n^2 + 10$ C. $n^2 + 10n + 25$ D. $n^2 + 10n + 10$

_____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 $(2n^3)^3$
A. $6n^6$ B. $6n^9$ C. $8n^6$ D. $8n^9$

_____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 $\sqrt{20a^3 y^{10}}$
A. $2ay^5\sqrt{5ay}$ B. $5ay^5\sqrt{2a}$ C. $2ay^5\sqrt{5a}$ D. $5ay^5\sqrt{2ay}$

_____9.   Simplify $\sqrt[3]{x^4 y^{10}}$
A. $xy^4\sqrt[3]{xy}$ B. $xy^3\sqrt[3]{xy^2}$ C. $xy^3\sqrt[3]{xy}$ D. $xy\sqrt[3]{y}$

_____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 $(a^4 n^3 x^6)(a^2 n^3 x^6)$
A. $a^8 n^6 x^{12}$ B. $a^6 n^9 x^{12}$ C. $a^6 n^6 x^{36}$ D. $a^6 n^6 x^{12}$

_____12.   Simplify $\sqrt{-80a^2}$
A. $4a\sqrt{5}$ B. $2ai\sqrt{10}$ C. $4ai\sqrt{5}$ D. None of the above
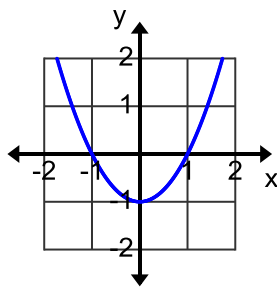
_____13. **Solve** by factoring: $2x^2 + 19x + 9 = 0$
A. x = 9 or x = ½   B. x = 9 or x = - ½
C. x = -9 or x = ½   D. x = -9 or x = - ½

_____14. Simplify $\sqrt{160}$
A. 40   B. $10\sqrt{4}$ 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: $4(2n + 5) + 2(3n + 5) = 10n + 22$
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: $4(2n - 3) + 2(2n - 1) = 10$
A. n = -4   B. $n = \dfrac{1}{2}$ C. n = -2   D. n = 2

_____20. Simplify $(x + 1)(x - 1)(x + 2)(x - 2)$
A. $x^4 - 5x^2 + 4$ B. $x^4 - 3x^2 + 4$ C. $x^4 - 6x^2 + 4$ D. None of the above

_____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 $\dfrac{n^2+4n+3}{n^2+7n+12}$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

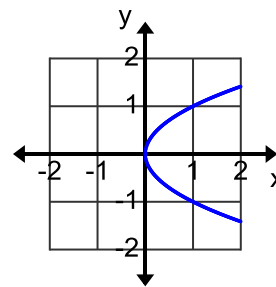A. $\dfrac{25b^4}{4a^6}$ B. $\dfrac{4b^4}{25a^6}$ C. $\dfrac{25a^6}{4b^4}$ D. $\dfrac{25a^6b^4}{4}$

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

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

_____35.   Factor $16a^4 b^2 + 20ab^5$
A. $ab^2(16a^3 + 20b^3)$ B. $ab(16a^3 b + 20b^4)$
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.
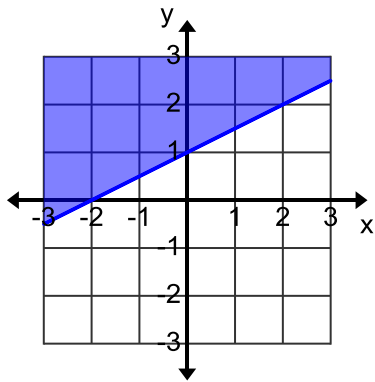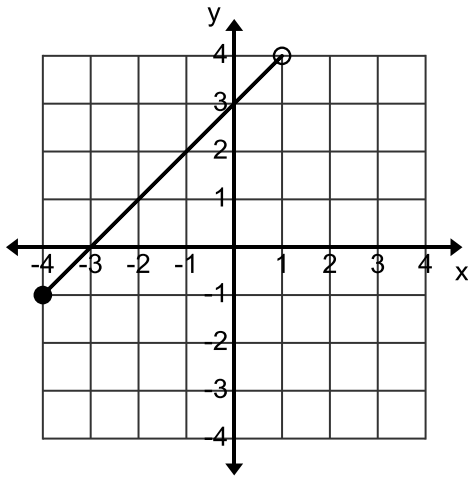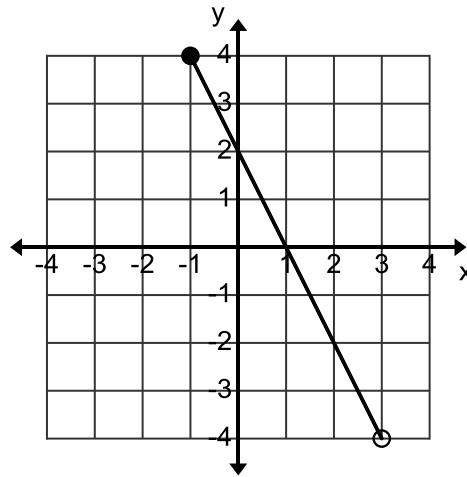
_____44. If $f(x) = 2x^2 - 4$, what is $f(2)$?
A. 2   B. 4   C. 8   D. 12

_____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. 12   B. 11   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 $f(x) = \dfrac{x^3}{x-3}$?
A. $x \neq 3$ B. $x > 3$ C. $x \geq 3$ D. None of the above

_____50. What is the domain of $f(x) = \dfrac{x^3 + 4x - 1}{\sqrt{x}}$?
A. $x \leq 0$ B. $x \neq 0$ C. $x > 0$ D. $x \geq 0$

_____51. What is the domain of $f(x) = x^3 - 8$?
A. $x \neq 2$ B. $\mathbb{R}$ C. $x \geq 2$ D. $x > 2$

_____52. What inequality is graphed below?

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

I   II

_____53.   What is the **domain** of the graph I above?
             A. $\mathbb{R}:-1<x\le 4$ B. $\mathbb{R}:-1\le x<4$ C. $\mathbb{R}:-4<x\le 1$ D. $\mathbb{R}:-4\le x<1$

_____54.   What is the **range** of the graph I above?
             A. $\mathbb{R}:-1<y\le 4$ B. $\mathbb{R}:-1\le y<4$ C. $\mathbb{R}:-4<y\le 1$ D. $\mathbb{R}:-4\le y<1$

_____55.   What is the **domain** of the graph II above?
             A. $\mathbb{R}:-1<x\le 3$ B. $\mathbb{R}:-1\le x<3$ C. $\mathbb{R}:-4<x\le 4$ D. $\mathbb{R}:-4\le x<4$

_____56.   What is the **range** of the graph II above?
             A. $\mathbb{R}:-1<y\le 3$ B. $\mathbb{R}:-1\le y<3$ C. $\mathbb{R}:-4<y\le 4$ D. $\mathbb{R}:-4\le y<4$

_____57.   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. $a^2c^2\sqrt[4]{b^2c^2}$

_____58.   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

_____59.   What is the domain of $y=x-4$?
             A. x > 4   B. x ≠ 4   C. x < 4   D. $\mathbb{R}$

_____60.   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

_____61.   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

_____62. 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. $x = \dfrac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

_____63. Factor $5a^2 + 10a^3$

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

_____64. Perform the following division $\quad n + 2\overline{)n^2 + 5n + 2}$

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

_____65. Perform the following division $\quad n - 5\overline{)n^2 + n - 1}$

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

_____66. Perform the following division $\quad n - 5\overline{)n^2 + 20}$

A. $n + 5 + \dfrac{-5}{n-5}$
  B. $n + 5 + \dfrac{1}{n-5}$
  C. $n + 5 + \dfrac{45}{n-5}$
  D. $n + 5 + \dfrac{-25}{n-5}$

_____67. In interval notation, what is x > 3?
A. $(3, \infty)$
  B. $[3, \infty)$
  C. $(-\infty, 3)$
  D. $(-\infty, 3]$

_____68. In interval notation, what is x < 3?
A. $(3, \infty)$
  B. $[3, \infty)$
  C. $(-\infty, 3)$
  D. $(-\infty, 3]$

_____69. In interval notation, what is x ≤ 3?
A. $(3, \infty)$
  B. $[3, \infty)$
  C. $(-\infty, 3)$
  D. $(-\infty, 3]$

_____70. In interval notation, what is 2 < x ≤ 5?
A. $(2, 5)$
  B. $[2, 5)$
  C. $[2, 5]$
  D. $(2, 5]$

_____71. What is the domain of $f(x) = \sqrt{x+6}$?
A. $x \neq -6$
  B. $x > -6$
  C. $x \geq -6$
  D. $\mathbb{R}$

_____72. What is the domain of $f(x) = \dfrac{2x}{2x-6}$?
A. $x \neq 3$
  B. $x > 3$
  C. $x \geq 3$
  D. $\mathbb{R}$

_____73. What is the domain of $f(x) = \sqrt{10-x}$?
A. $x \neq 10$
  B. $x \leq 10$
  C. $x \geq 10$
  D. $\mathbb{R}$