MATH 110

FINAL REVIEW – Version B

1. $Solve$: $8x^2 - 10x + 3 = 0$

A. $x = \frac{3}{4}, \frac{1}{2}$ B. $x = -\frac{1}{4}, \frac{2}{3}$ C. $x = 6, 4$ D. $x = -8, -3$

2. $Solve$: $(y - 20)^2 = 625$

A. $y = 45$ B. $y = -45, 5$ C. $y = 45, -5$ D. $y = -5$

3. $Solve\ for\ x$: $3x^2 + 8x - 16 = 0$

A. $x = \frac{4}{3}, -4$ B. $x = -\frac{4}{3}, 4$ C. $x = -4, 12$ D. $x = -4, -4$

4. $Solve$: $x^2 + 8x - 4 = 0$

A. $x = 8, -4$ B. $x = -2, -4$ C. $x = -4 \pm 4\sqrt{5}$ D. $x = -4 \pm 2\sqrt{5}$

5. $Simplify$: $\frac{x^2-7x}{x^2-4x-21}$

A. $\frac{1}{4}$ B. $\frac{x}{x+3}$ C. $\frac{7x}{4x-21}$ D. $\frac{7}{25}$

6. $Solve$: $\frac{y-2}{6} + \frac{2y+5}{15} = 3$

A. $y = 0$ B. $y = \frac{1}{3}$ C. $y = 10$ D. $y = 5$

7. $Solve\ for\ x$: $\frac{3x}{4} = \frac{x^2+3x}{8x}$

A. $x = \frac{3}{2}$ B. x= $\frac{3}{2}, 0$ C. $x = \frac{3}{5}$ D. $x = \frac{3}{5}, 0$

8. $Simplify$: $\frac{x^2-16}{x^2+8x+16} \bullet \frac{3x^2-5x-2}{x^2-6x+8}$

A. $\frac{3x+1}{x-4}, x \neq -4, 2, 4$ B. $\frac{3x+1}{x+4}, x \neq -4, 2, 4$ C. $\frac{8}{x+2}, x \neq -2$ D. $\frac{4x}{x+4}, x \neq -4$

9. $Divide\ and\ simplify$: $\frac{25x^2y}{60x^3y^2} \div \frac{5x^4y^3}{16x^2y}$

A. $\frac{25xy}{192}$ B. $\frac{4}{3x^3y^3}$ C. $\frac{16}{5x^2y^3}$ D. $\frac{4x^7y^5}{5}$

10. *Simplify*: $\dfrac{\frac{5x}{x+7}}{\frac{10}{x^2+8x+7}}$

A. $\frac{x(x+1)}{2}, x \neq -7, -1$ B. $5(x^2+8)$ C. $\frac{x+1}{2x}, x \neq 0$ D. $\frac{50x}{(x+7)(x^2+8x+7)}, x \neq -7, -1$

11. *Subtract and simplify*: $\frac{1}{x+4} - \frac{1}{x+2}$

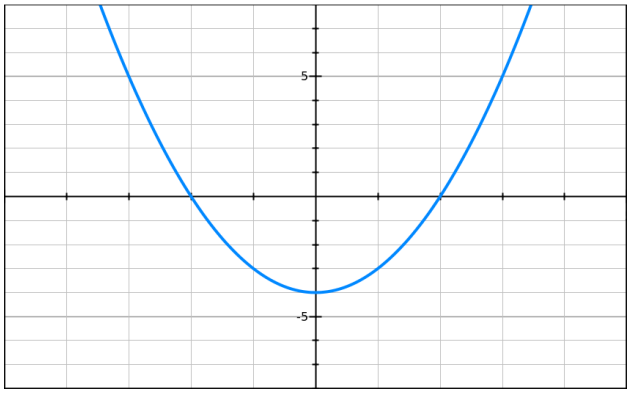
A. $\frac{2}{2x+6}$ B. 0 C. $\frac{-2}{(x+4)(x+2)}$ D. $\frac{6}{2x+6}$

12. *Given* $f(x) = 6 - 2x$, *evaluate for* $f(-4)$.

A. $f(-4) = -2$ B. $f(-4) = 0$ C. $f(-4) = 14$ D. $f(-4) = -24 + 8x$

13. *Given* $f(x) = \sqrt{2x-3}$, *evaluate for* $f(x+2)$.

A. $2x - 1$ B. $\sqrt{2x-1}$ C. $2x + 1$ D. $\sqrt{2x+1}$

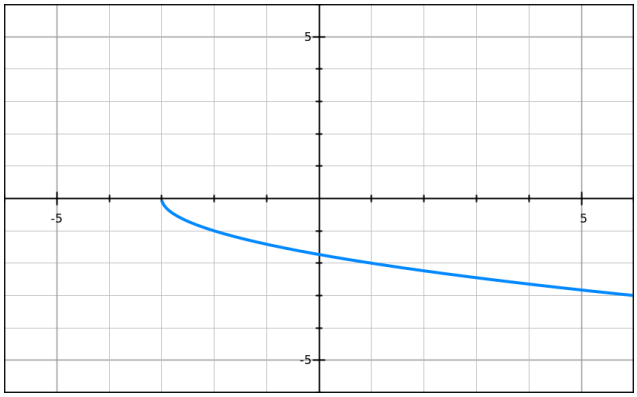


14. *For the graph above, evaluate* $f(0)$

A. $f(0) = -4$ B. $f(0) = -2, 2$ C. $f(0) = -4, -2, 2$ D. $f(0) = 0$

15. *For the graph above, determine the domain.*

A. $(-4, \infty)$ B. $(-\infty, \infty)$ C. $(-2, 2)$ D. $(-4, -2) \cup (-2, 2)$



16. *For the graph above, determine the domain and range.*

A. D: $(-\infty, 0]$ R: $(-3, \infty)$ B. D: $(-1.9, 0)$ R: $(-3, 0)$

C. D: $[-3, \infty)$, R: $(-\infty, 0]$ D. D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

17. *Find the domain of* $\frac{x-2}{(x+6)(x-3)}$

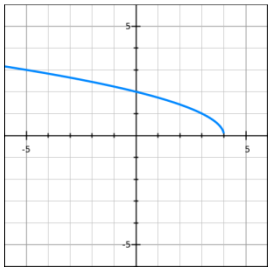
A. $(-\infty,-3)\cup(-3,-2)\cup(-2,6)\cup(6,\infty)$ B. $(-6,3)$

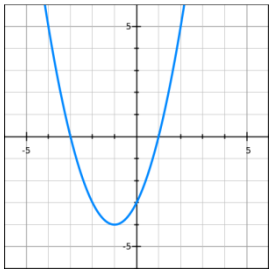
C. $(-\infty,-3)\cup(-3,6)\cup(6,\infty)$ D. $(-\infty,-6)\cup(-6,3)\cup(3,\infty)$

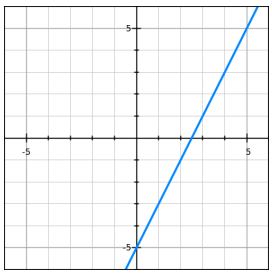
18. *Find the domain of* $f(x)$ *if* $f(x)=\sqrt{2-x}$

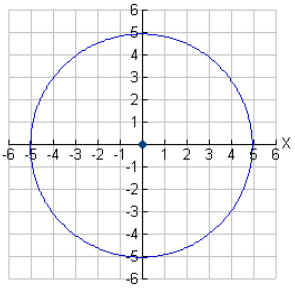
A. $[2,\ \infty)$ B. $[-2,\infty)$ C. $(-\infty,2]$ D. $(-\infty,-2]$

19. *Which graph does not represent a function?*

A. 

B. 

C. 

D. 

20. *Determine the equation of the line containing the points* $(4,-5)$ *and* $(7,1)$.

A. $y=2x-13$ B. $y=-6x+1$ C. $y=\frac{1}{2}x-7$ D. $-\frac{1}{6}x-\frac{13}{3}$

21. *Determine the equation of a line containing the points* $(0,-5)$ *and* $(8,1)$.

A. $y=\frac{3}{4}x-5$ B. $y=-\frac{5}{7}x+1$ C. $y=\frac{4}{3}x-9$ D. $y=-5x-8$

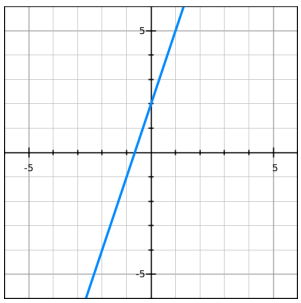
22. *Determine the equation of the line perpendicular to* $2x+4y=16$ *that passes through* $(-1,5)$.

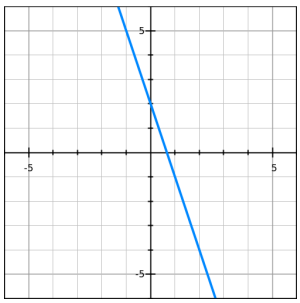
A. $y=-\frac{1}{2}x-\frac{3}{2}$ B. $y=-\frac{1}{2}x+4$ C. $y=2x+7$ D. $y=2x+5$

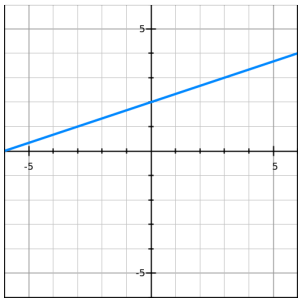
23. *Find the x and y intercepts of the line* $2y=3x+12$

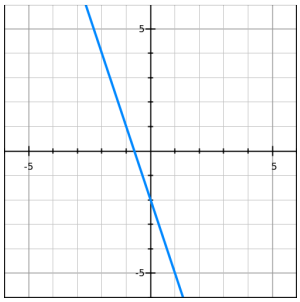
A. X: $(-4,0)$ Y: $(0,6)$ B. X: $(0,-4)$ Y: $(6,0)$ C. X: $(6,0)$ Y: $(0,4)$ D. X: $(0,0)$ Y: $(0,-2)$

24. *Graph the equation:* $y - 2 = 3x$

A. 

B. 

C. 

D. 

25. *Solve the system:* $x + y = 0$
$3x - 2y = 10$

A. $(\frac{12}{5}, -\frac{12}{5})$ B. $(2, -2)$ C. $(-13, 13)$ D. $(-5, 5)$

26. *Solve the system:* $-3x + 5y = -23$
$2x - 5y = 22$

A. $(-9, -8)$ B. $(-1, 4)$ C. $(1, -4)$ D. $(-\frac{3}{2}, -1)$

27. *Solve the system:* $-2x + 3y = 9$
$6x - 9y = -27$

A. $(0, 3)$ B. $(\frac{9}{2}, 6)$ C. $\mathbb{R}$ D. *no solution*

28. *If you were to complete the square for the equation* $x^2 + 12x = -27$, *what value would you add to both sides of the equation?*

A. 144 B. 36 C. 1 D. 12

29. *In* 2008, *an IPhone cost* \$400. *One cell phone provider offered a plan including* 450 *minutes and* 300 *texts for* \$60 *per month. What is the linear equation to compute the total cost* (y) *for* x *months on this plan?*

A. $y = 450x + 300$ B. $y = 400 + 60x$ C. $y = 450 + 300x$ D. $y = 400x + 60$

30. *Solve the inequality*: $0 \leq \frac{x-5}{2} < 4$

A. $[5, 13)$ B. $(-13, 5]$ C. $[7, 13)$ D. $[5, 9]$

31. *Solve the inequality*: $8 - 3x > 5$ *and* $x - 5 \geq 10$

A. $[-\infty, 1) \cup [15, \infty)$ B. $[15, \infty)$ C. *No solution* D. $(1, 15]$

32. *Solve the inequality*: $\frac{x}{3} - 2 \geq 1$ *or* $5 + \frac{3}{4}x \leq -4$

A. $[-12, 9]$ B. $(-\infty, -3] \cup (3, \infty]$ C. $(-\infty, -12] \cup [9, \infty)$ D. $\mathbb{R}$

33. *Solve*: $|7x + 6| = 8$

A. $x = -2, 2$ B. $x = 2$ C. $x = -\frac{8}{7}, \frac{6}{7}$ D. $x = \frac{2}{7}, -2$

34. *Solve*: $|6x - 4| - 7 = 3$

A. $x = -1, \frac{7}{3}$ B. $x = \frac{5}{3}, \frac{7}{6}$ C. $x = 0, \frac{4}{3}$ D. *No solution*

35. *Solve*: $|5 - 2x| + 10 = 6$

A. $x = \frac{1}{2}, \frac{9}{2}$ B. *No solution* C. $x = -\frac{11}{2}, \frac{21}{2}$ D. $x = \frac{9}{2}$

36. *Solve the inequality*: $|x - 4| \geq 3$

A. $[1, 7]$ B. $[7, \infty)$ C. $(-\infty, 1] \cup [7, \infty)$ D. $(-\infty, -7] \cup [-1, \infty)$

37. *Solve the inequality*: $-4|2x - 7| > -12$

A. $(-\infty, 2) \cup (5, \infty)$ B. $(-\infty, -5) \cup (5, \infty)$ C. $(-\frac{9}{2}, \frac{23}{2})$ D. $(2,5)$

38. *Simplify*: $\sqrt{125x^4y^6}$

A. $5x^4y^6\sqrt{5}$ B. $5xy^2\sqrt{x}$ C. $5x^2y^3\sqrt{5}$ D. $5xy\sqrt{5xy}$

39. *Simplify*: $\sqrt[3]{16x^4y^5}$

A. $2\sqrt[3]{2x^4y^5}$ B. $8x^3y^3\sqrt[3]{xy^2}$ C. $2xy\sqrt[3]{y}$ D. $2xy\sqrt[3]{2xy^2}$

40. *Simplify*: $\sqrt[4]{\frac{3x^2}{16y^8}}$

A. $\frac{\sqrt[4]{3x^2}}{2y^2}$ B. $\frac{x\sqrt[4]{3}}{2y}$ C. $\frac{x\sqrt[4]{3}}{y^2\sqrt[4]{4}}$ D. $\frac{\sqrt[4]{3}}{\sqrt[4]{16}}$

41. *Simplify*: $\sqrt[4]{32x^4y^5z^2}$

A. $8xy\sqrt[4]{yz^2}$ B. $2xy\sqrt[4]{2yz^2}$ C. $2x^2y^2z$ D. $2x\sqrt[4]{2y^5z^2}$

42. *Simplify*: $-121^{\frac{1}{2}}$

A. $11i$ B. -11 C. $-\frac{121}{2}$ D. $\frac{121}{2}i$

43. *Express using radical notation and simplify*: $x^{\frac{7}{3}}y^{\frac{4}{3}}$

A. $\sqrt[7]{x^3} \bullet \sqrt[4]{y^3}$ B. $\sqrt[3]{28xy}$ C. $x^2y\sqrt[3]{xy}$ D. $\frac{28}{9}xy$

44. *Express using exponential notation*: $\sqrt{\frac{2x^7}{y^3}}$

A. $2^{\frac{1}{2}}x^{\frac{7}{2}}y^{\frac{-3}{2}}$ B. $\frac{2x^3\sqrt{x}}{y\sqrt{y}}$ C. $(2x^7y^3)^{\frac{1}{2}}$ D. $2x^3y(\sqrt{xy})$

45. *Solve*: $\sqrt{2x-7} = -5$

A. $x = 1$ B. $x = 16$ C. $\mathbb{R}$ D. *No solution*

46. *Solve*: $\sqrt{5x-2} + 7 = 10$

A. $x = 1$ B. $x = \frac{11}{5}$ C. $x = \frac{\sqrt{13}}{5}$ D. $x = \frac{13}{25}$

47. *Solve*: $\sqrt{3x+1} = \sqrt{x+15}$

A. $x = 4$ B. $x = 7$ C. $x = 8$ D. $x = 28$

48. *Multiply*: $(3+\sqrt{x})(4-2\sqrt{x})$

A. $12-2x$ B. $6x$ C. $12-2\sqrt{x}-2x$ D. $24x-12$

49. *Simplify*: $3\sqrt{45}+8\sqrt{20}$

A. $25\sqrt{5}$ B. $11\sqrt{65}$ C. $16\sqrt{5}$ D. $24\sqrt{65}$

50. *Rationalize the denominator*: $\frac{4y}{\sqrt{10z}}$

A. $\frac{\sqrt{4yz}}{10z}$ B. $\frac{2y}{5z}$ C. $\frac{40yz}{100z}$ D. $\frac{2y\sqrt{10z}}{5z}$

ANSWER KEY – Version B

1.	A	26.	C
2.	C	27.	C
3.	A	28.	B
4.	D	29.	B
5.	B	30.	A
6.	C	31.	C
7.	C	32.	C
8.	B	33.	D
9.	B	34.	A
10.	A	35.	B
11.	C	36.	C
12.	C	37.	D
13.	D	38.	C
14.	A	39.	D
15.	B	40.	A
16.	C	41.	B
17.	D	42.	B
18.	C	43.	C
19.	D	44.	A
20.	A	45.	D
21.	A	46.	B
22.	C	47.	B
23.	A	48.	C
24.	A	49.	A
25.	B	50.	D