

Name: _____

Date: _____

Placement Test Review Problems

_____ 1. List the integer elements of $B = \{7, \sqrt{7}, -20, 0, -\frac{5}{8}, \frac{8}{5}, 1.5, \sqrt{16}\}$

- (a) 7, 0 (b) 7, -20, 0 (c) 7, -20, 0, $\sqrt{16}$ (d) 7, 0, $\sqrt{16}$

_____ 2. Simplify the expression. $5 - 2[-2^2 - (3 \cdot 2^3 - 12 \div \sqrt{9})] =$

- (a) -48 (b) 53 (c) 37 (d) -72

_____ 3. Simplify; use positive exponents in answer. $\left(\frac{3p^4v^{-2}}{s^4}\right)^{-2} =$

- (a) $\frac{3p^8v^4}{s^6}$ (b) $\frac{-9s^8v^4}{p^8}$ (c) $\frac{3p^8v^4}{s^8}$ (d) $\frac{s^8v^4}{9p^8}$

_____ 4. Evaluate and write the answer in scientific notation. $\frac{4.6 \times 10^5}{2.3 \times 10^{-2}} =$

- (a) 2×10^{-7} (b) 2×10^7 (c) 2×10^3 (d) 2×10^{-3}

_____ 5. Solve for y. $\frac{3}{8}y - (y - \frac{4}{9}) = \frac{1}{72}(y - 7)$

- (a) $-\frac{39}{98}$ (b) $\frac{39}{44}$ (c) $\frac{39}{46}$ (d) $-\frac{25}{46}$

_____ 6. Solve for C. $F = \frac{2}{5}C + 32$

- (a) $C = \frac{5}{9}(F - 32)$ (b) $C = \frac{(F - 32)}{9}$
(c) $C = \frac{5}{(F - 32)}$ (d) $C = \frac{5}{9}(F - 32)$

_____ 7. Solve. $-42x - 42 \leq -6(6x + 3)$

- (a) $x \leq -4$ (b) $x > -4$ (c) $x \geq -4$ (d) $x < -4$

Placement Test Review Problems (cont.)

_____ 8. Solve. $|8m - 3| + 1 = 14$

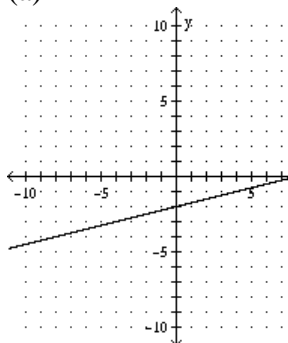
- (a) 2 (b) $2, -\frac{5}{4}$ (c) $2, -2$ (d) $2, -\frac{3}{2}$

_____ 9. Solve. $|3y - 2| - 7 > -4$

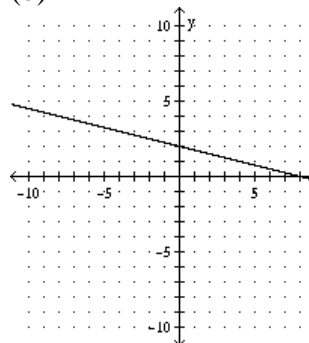
- (a) $y > \frac{5}{3}$ or $y < -\frac{1}{3}$ (b) $y > \frac{5}{3}$
 (c) $-\frac{1}{3} < y < \frac{5}{3}$ (d) $y > \frac{5}{3}$ or $y < \frac{13}{3}$

_____ 10. Graph. $y = \frac{1}{4}x + 2$

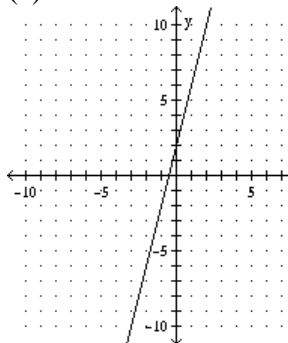
(a)



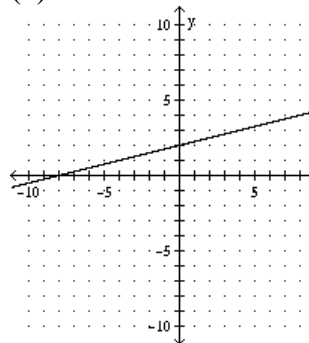
(b)



(c)



(d)



_____ 11. Find the slope of a line that is perpendicular to $5x + 2y = 8$.

- (a) 4 (b) $-\frac{5}{2}$ (c) $\frac{5}{2}$ (d) $\frac{2}{5}$

_____ 12. Solve the system. $\begin{cases} 3x - 5y = -12 \\ 6x + 8y = -24 \end{cases}$ The solution for x is

- (a) -4 (b) 0 (c) 4 (d) 2

Placement Test Review Problems (cont.)

_____ 13. Simplify. $(-6x^5 + 9x^7 - 1 - 9x^6) - (-4 + 6x^6 + 3x^7 - 9x^5) =$

(a) $12x^7 - 3x^6 - 15x^5 - 5$

(b) $6x^7 - 15x^6 + 3x^5 + 3$

(c) $6x^7 - 3x^6 - 15x^5 - 5$

(d) $12x^7 - 3x^6 - 15x^5 + 3$

_____ 14. Multiply. $(9x - 5y)^2 =$

(a) $9x^2 - 90xy + 25y^2$

(b) $9x^2 + 25y^2$

(c) $81x^2 + 25y^2$

(d) $81x^2 - 90xy + 25y^2$

_____ 15. Multiply. $(x + \frac{1}{3})(x - \frac{1}{3}) =$

(a) $x^2 - 9$

(b) $x^2 - \frac{1}{9}$

(c) $x^2 + 9x - 9$

(d) $9x^2 - 1$

_____ 16. Factor completely. $10a^3 - 25a^2b - 12ab^2 + 30b^3 =$

(a) $(5a^2 + 6b^2)(2a + 5b)$

(b) $(5a^2 - 6b)(2a - 5b)$

(c) $(10a^2 - 6b^2)(a - 5b)$

(d) $(5a^2 - 6b^2)(2a - 5b)$

_____ 17. Factor completely. $t^3 + 64 =$

(a) $(t + 4)(t^2 - 4t + 16)$

(b) $(t - 64)(t^2 - 1)$

(c) $(t + 4)(t^2 + 16)$

(d) $(t - 4)(t^2 + 4t + 16)$

_____ 18. Solve. $4k^2 - 23k - 6 = 0$

(a) $-\frac{1}{4}, 6$

(b) $-\frac{1}{4}, 4$

(c) $-4, 6$

(d) $\frac{1}{23}, -\frac{1}{4}$

_____ 19. A certain rectangle's length is 9 feet longer than its width. If the area of the rectangle is 90 square feet, find its dimensions.

(a) 5 feet by 14 feet

(b) 6 feet by 15 feet

(c) 7 feet by 16 feet

(d) 5 feet by 16 feet

Placement Test Review Problems (cont.)

_____ 20. Divide and simplify. $\frac{z^2 + 10z + 24}{z^2 + 11z + 28} \div \frac{z^2 + 6z}{z^2 - z - 56} =$

(a) $\frac{z-8}{z}$ (b) $\frac{z-8}{z^2+7z}$ (c) $z-8$ (d) $\frac{z}{z^2+11z+28}$

_____ 21. Add. $\frac{3}{y^2-3y+2} + \frac{5}{y^2-1} =$

(a) $\frac{7y-8}{(y-1)(y+1)(y-2)}$ (b) $\frac{8y-7}{(y-1)(y+1)(y-2)}$
(c) $\frac{8}{(y-1)(y+1)(y-2)}$ (d) $\frac{8y-7}{(y-1)(y-2)}$

_____ 22. Simplify. $\frac{4 + \frac{2}{x}}{\frac{x}{3} + \frac{1}{6}} =$

(a) $\frac{x}{12}$ (b) 12 (c) 1 (d) $\frac{12}{x}$

_____ 23. Solve. $\frac{8}{x+5} - \frac{3}{x-5} = \frac{15}{x^2-25}$

(a) 70 (b) -14 (c) 8 (d) 14

_____ 24. Simplify. $\frac{(2x^{1/2})^3}{x^{-1/4}} =$

(a) $6x^{7/4}$ (b) $8x^{3/8}$ (c) $8x^{5/4}$ (d) $8x^{7/4}$

_____ 25. Simplify. $\sqrt[3]{-64a^{14}b^{13}} =$

(a) $4ab\sqrt[3]{a^5b^5}$ (b) $4\sqrt[3]{a^{13}b^{14}}$
(c) $-4a^4b^4\sqrt[3]{a^2b}$ (d) $-4a^4b^4\sqrt{a^2b}$

Placement Test Review Problems (cont.)

_____ 26. Rationalize the denominator. $\frac{1+\sqrt{6}}{1-\sqrt{6}} =$

- (a) $\frac{-5-2\sqrt{6}}{7}$ (b) $\frac{7-2\sqrt{6}}{-5}$ (c) -1 (d) $\frac{7+2\sqrt{6}}{-5}$

_____ 27. Solve. $\sqrt{3x+1} = x-3$

- (a) 1,8 (b) 8 (c) $-1,-8$ (d) 1

_____ 28. Simplify. $4-\sqrt{-100}$

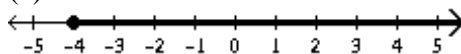
- (a) $4+10$ (b) $4-10i$ (c) $4+10i$ (d) $4-100i$

_____ 29. Solve. $5+3x(x-2) = 4.$

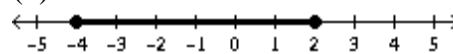
- (a) $\frac{3\pm\sqrt{6}}{3}$ (b) $\pm\sqrt{24}$ (c) $1\pm 2\sqrt{6}$ (d) $\frac{3\pm 2\sqrt{3}}{3}$

_____ 30. Solve the inequality $x^2 + 2x \geq 8$ and graph the solution.

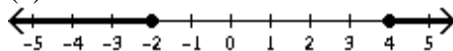
(a) $x \geq -4$ or $x \geq 2$



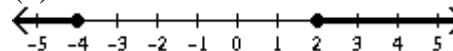
(b) $-4 \leq x \leq 2$



(c) $x \geq 4$ or $x \leq -2$



(d) $x \leq -4$ or $x \geq 2$



_____ 31. The equation $0.08x = 48$ is equivalent to :

- (a) $8x = 480$ (b) $8x = 0.48$ (c) $0.01x = 6$ (d) $x = 47.02$

_____ 32. Simplify. $7-2[3x-2(x-5y)-7y]$

- (a) $7-2x+24y$ (b) $7-2x-6y$ (c) $7-2x+34y$ (d) $5x+15y$

_____ 33. Simplify. $(4p^4y^3)(-2p^2y)$

- (a) $\frac{p^8y^3}{8}$ (b) $-8p^8y^3$ (c) $-8p^6y^3$ (d) $-8p^6y^4$

Placement Test Review Problems (cont.)

_____ 34. The x intercept of $5x + 3y = 15$ is.

- (a) 0 (b) 5 (c) 3 (d) $x = 47.02$

_____ 35. If $f(x) = 3x^2 + 4$, $f(x-h) =$

- (a) $3(x-h)^2 + 4$ (b) $3x^2 + 4 - h$ (c) $(3x^2 + 4) - (3h^2 + 4)$ (d) $3x^2 - 2xh + h^2 + 4$

_____ 36. If $\log_b a = c$, then

- (a) $b^c = a$ (b) $b^a = c$ (c) $a^c = b$ (d) $c^b = a$

_____ 37. If $8^x = 5$, then

- (a) $x = \log_8 5$ (b) $x = \log_5 8$ (c) $x = \log \frac{5}{8}$ (d) $x = \log_8 \frac{8}{5}$

_____ 38. $\frac{4}{3a} + \frac{3}{2b} =$

- (a) $\frac{3}{a+b}$ (b) $\frac{8b+9a}{6ab}$ (c) $\frac{7}{3a+2b}$ (d) $\frac{7}{6ab}$

_____ 39. $5x^0 =$

- (a) 0 (b) 5 (c) 1 (d) undefined

_____ 40. $\frac{6x^2 + 2x}{2x} =$

- (a) $3x$ (b) $3x+1$ (c) $6x^2$ (d) $5x$

_____ 41. $\frac{10}{\sqrt{15}} =$

- (a) $\frac{20}{3}$ (b) $\frac{2}{\sqrt{3}}$ (c) $\frac{2\sqrt{15}}{3}$ (d) 2.6

Placement Test Review Problems (cont.)

_____ 42. Solve. $10x^2 = 5x$

- (a) $\{\frac{1}{2}\}$ (b) $\{\frac{1}{2}, 0\}$ (c) $\{2\}$ (d) $\{-\frac{1}{2}, 0\}$

_____ 43. $\left(\frac{2}{3}\right)^{-2} - \left(\frac{3}{4}\right)^{-1} =$

- (a) $\frac{11}{12}$ (b) $-\frac{7}{12}$ (c) $-\frac{43}{36}$ (d) $-\frac{8}{9}$

_____ 44. $16^{-\frac{3}{4}} =$

- (a) -12 (b) $16^{\frac{3}{4}}$ (c) $\frac{1}{8}$ (d) -8

_____ 45. $(2 - 3\sqrt{x})^2 =$

- (a) $4 - 9x$ (b) $4 + 9x$ (c) $4 - 6\sqrt{x} + x$ (d) $4 - 12\sqrt{x} + 9x$

_____ 46. $\frac{2}{5}ab - 3a^2 + \frac{3}{4}ab - 5a^2 =$

- (a) $\frac{5}{9}ab - 8a^2$ (b) $\frac{23}{20}ab - 8a^2$ (c) $\frac{17}{10}ab - 8a^2$ (d) $23ab - 160a^2$

_____ 47. Solve for p. $A = \frac{12M}{p + 3pr}$

- (a) $\frac{12M - 3pAr}{A}$ (b) $\frac{4M}{Ar}$ (c) $\frac{4M}{A + Ar}$ (d) $\frac{12M}{A + 3Ar}$

_____ 48. $-\sqrt{12} + 2\sqrt{27} - \sqrt{75} =$

- (a) $-\sqrt{3}$ (b) $\sqrt{3}$ (c) $-11\sqrt{3}$ (d) can not be combined

Placement Test Review Problems (cont.)

_____49. Solve the system: $\begin{cases} 10x + 3y = 8 \\ y = -2x + 2 \end{cases}$ The solution for y is:

- (a) $\frac{1}{2}$ (b) -1 (c) 1 (d) $-\frac{1}{2}$

_____50. The smallest angle in a triangle is one-third of the largest angle. The third angle is 20° more than the smallest. Find the measure of the smallest angle.

- (a) 96° (b) 32° (c) 52° (d) 16°

_____51. Simplify. $8 - (-6) \left[\frac{2(-3) - 5(4)}{-8(6) - 4} \right] =$

- (a) 11 (b) 7 (c) -7 (d) 0

_____52. Simplify. $\frac{2x^{-5}}{x^{-6}} =$

- (a) $32x$ (b) $x/32$ (c) $2x$ (d) $2/x$

_____53. Expand and simplify. $(x-2)^3$

- (a) $x^3 - 8$ (b) $x^3 - 6x^2 + 12x - 8$ (c) $x^3 + 6x^2 - 12x - 8$ (d) $x^3 - x^2 + x - 8$

_____54. If $g(x) = x^2 - 6$, then $g(c) + g(2) =$

- (a) $c^2 + 4c - 2$ (b) $c^2 - 8$ (c) $c^2 + 4c + 4$ (d) $c^2 + 4$

_____55. Rationalize the denominator. $\frac{1}{\sqrt[3]{x^2}} =$

- (a) $\frac{\sqrt[3]{x^2}}{x}$ (b) $\frac{\sqrt[3]{x}}{x}$ (c) $\frac{1}{x}$ (d) $\frac{\sqrt{x}}{x}$

Placement Test Review Problems (cont.)

_____56. Simplify. $\frac{a^{-1} + b^{-1}}{a^{-1}}$

- (a) $1 + \frac{1}{b}$ (b) $\frac{a}{a+b}$ (c) $\frac{1}{b}$ (d) $\frac{b+a}{b}$

_____57. Solve : $3x+1 > -2$ AND $-4x < -8$

- (a) $x > 2$ (b) $x > -1$ (c) $-1 < x < 2$ (d) no solution

_____58. Find the equation of line through points (2,3) and (-4,5).

- (a) $y - 5 = -\frac{1}{3}(x - 2)$ (b) $y - 5 = -\frac{1}{3}(x + 4)$
(c) $y - 5 = 3(x + 4)$ (d) $y = -\frac{1}{3}x + 5$

_____59. If set $A = \{1, 3, 6, 9, 12\}$ and set $B = \{1, 2, 4, 6, 8, 12\}$, find $A \cap B$:

- (a) $\{6, 12\}$ (b) $\{1, 12\}$ (c) $\{1, 6, 12\}$ (d) $\{1, 2, 3, 4, 5, 6, 8, 9, 12\}$

_____60. If $x = 3$ and $y = -2$, evaluate the expression $-3(x - y)^2 + 1$.

- (a) -74 (b) -75 (c) -38 (d) -2