REVIEW FOR INTERMEDIATE ALGEBRA (MATH 0312) FINAL EXAM

Section 2.1

1) Solve the equation: $-[3x + (8x + 1)] = 6 - (2x + 4)$ 1) _____

Section 2.2

2) Solve the formula for the specified variable: $c = \frac{3t + 4}{t}$ for t 2) _____

Section 2.3

3) Find the length of a rectangular lot with a perimeter of 118 m if the length is 5 m more than the width. 3) _____

Section 2.5

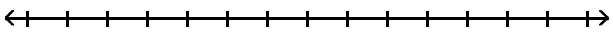
4) Solve the inequality: $6(4a - 3) \geq 30a - 6$ 4) _____

Section 2.7

5) Solve the absolute value equation or indicate that the equation has no solution: $|4m + 5| = 6$ 5) _____

6) Solve the absolute value equation or indicate that the equation has no solution: $|3x - 1| + 3 < -3$ 6) _____

7) Solve the absolute value inequality and graph the solution set: $|r + 9| > 2$ 7) _____



Section 3.1

8) Name the quadrant in which the point is located: $(-17, 10)$ 8) _____

Section 3.2

9) Find the slope of the line that contains the following ordered pairs: $(1, -8)$ and $(-4, 3)$ 9) _____

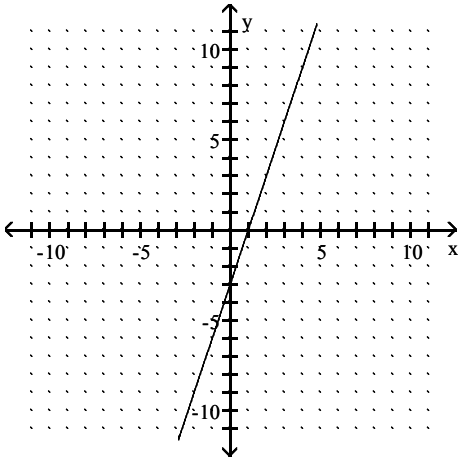
Section 3.3

10) Find the slope and the y–intercept of the line: $6x + 5y = 28$ 10) _____

11) Find the equation of the line through $(-3, 8)$ and perpendicular to $-3x + 4y = -23$. Write the equation in slope–intercept form. 11) _____

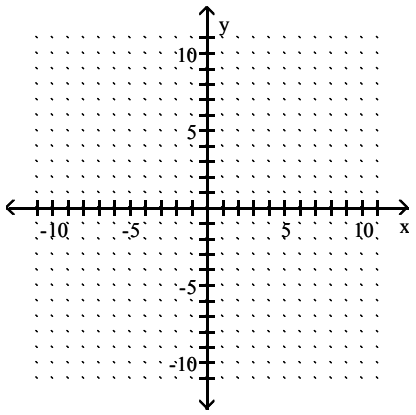
Section 3.2

12) Find the slope of the line. 12) _____



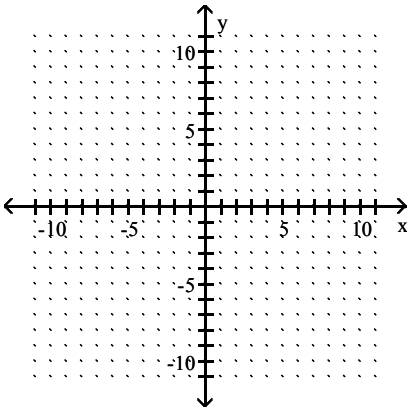
Section 3.3

13) Graph the given equation: $y = 2x - 4$ 13) _____



Section 3.4

14) Graph the solution set of $x - y > -6$ 14) _____



Section 3.5

15) Decide whether the relation is a function: {(–4, 1), (–3, –6), (3, –8), (3, 4)} 15) _____

16) Find f(–1) for $f(x) = 3x^2 + 5x + 6$. 16) _____

17) Rewrite the following equation using function notation: $9x^2 + 7y = 6$ 17) _____

Section 4.1

18) Solve the following system to find the x–value of the solution: 18) _____

$$x - 4y = -4$$
$$-4x - 3y = -3$$

Sectin 5.1

19) Multiply and simplify: $3x^2(-5x^{-6})(-2x)^0$ 19) _____

20) Evaluate: $\left(\frac{-3w^3}{x}\right)^2$ 20) _____

Section 5.3

21) Let $f(x) = x^2 - 4$ and $g(x) = 4x + 6$. Find $(f - g)(2)$. 21) _____

22) Find $(f \circ g)(x)$ for functions $f(x) = x + 6$ and $g(x) = 8x - 9$. 22) _____

Section 5.4

23) Find the product: $(10p - 1)(100p^2 + 10p + 1)$ 23) _____

24) Find the product: $(2m + 5)^2$ 24) _____

Section 5.5

25) Find the quotient and the remainder when $3y^3 - y + 4$ is divided by $y - 2$. 25) _____

Section 6.1

26) Which of the following is a factor of $m^2s - m^2t - ns + nt$? 26) _____

A) $(m^2 + n)$ B) $(s - t)$ C) $(s - m^2)$ D) $(s - n)$

Section 6.2

27) Which of the following is a factor of $x^2 + 4xy - 21y^2$? 27) _____

A) $(x + 7y)$ B) $(x + 3y)$ C) $(x - 7y)$ D) $(x - y)$

28) Which of the following is a factor of $15x^2 + 22x + 8$? 28) _____

A) $(3x - 2)$ B) $(5x + 4)$ C) $(15x + 2)$ D) $(x + 8)$

Section 6.3

29) Factor the polynomial completely: $81x^2 + 90xy + 25y^2$ 29) _____

30) Factor the polynomial completely: $x^3 - 64$ 30) _____

Section 6.5

31) Solve the following quadratic equation: $6x^2 = 30 + 24x$. 31) _____
If the solutions are added, then their sum is _____.

Section 7.1

32) Find all numbers not in the domain of the function: $f(x) = \dfrac{x^2 - 64}{x^2 - 2x - 48}$ 32) _____

33) Simplify by reducing to lowest terms: $\dfrac{4x + 4}{20x^2 + 28x + 8}$ 33) _____

34) Perform the indicated operations and simplify the result: $\dfrac{k^2 + 10k + 16}{k^2 + 13k + 40} \cdot \dfrac{k^2 + 5k}{k^2 - 2k - 8}$ 34) _____

35) Perform the indicated operations and simplify the result: $\dfrac{(2x - 7)(x + 2)}{(x + 8)(x - 3)} \div \dfrac{(x + 2)(3x + 7)}{(x + 8)(x - 3)}$ 35) _____

Section 7.2

36) Perform the indicated operations and simplify the result: $\dfrac{2x + 6}{x^2 + 3x + 2} - \dfrac{x + 5}{x^2 + 3x + 2}$ 36) _____

37) Perform the indicated operations and simplify the result: $\dfrac{2ab}{a^2 - b^2} - \dfrac{b}{a - b} + 4$ 37) _____

Section 7.3

38) Simplify the complex rational expression: $\dfrac{\dfrac{9s^2 - 25t^2}{st}}{\dfrac{3}{t} - \dfrac{5}{s}}$ 38) _____

Section 7.4

39) Solve the following equation: $\dfrac{x}{2x + 2} = \dfrac{-2x}{4x + 4} + \dfrac{2x - 3}{x + 1}$ 39) _____

Section 7.5

40) One maid can clean the house three times faster than another. Working together they can clean the entire house in 3 hours. How long would it take the faster maid cleaning alone? 40) _____

Section 8.1

41) Simplify the root: $\sqrt[4]{x^8}$ 41) _____

Section 8.2

42) Simplify the expression: $32^{-3/5}$ 42) _____

43) Multiply using the product rule, then simplify the product: $\sqrt{12} \cdot \sqrt{3}$ 43) _____

Section 8.3

44) Express the radical in simplified form: $-\sqrt{12k^7q^8}$ 44) _____
(Assume that all variables represent positive real numbers.)

Section 8.4

45) Simplify: $5\sqrt{54} - 2\sqrt{24} - 2\sqrt{96}$ 45) _____

Section 8.5

46) Multiply, then simplify the product: $(\sqrt{13} + 1)(\sqrt{13} - 1)$ 46) _____

47) Rewrite the expression by rationalizing the denominator: $\frac{3\sqrt{2}}{\sqrt{11}}$ 47) _____

48) Write the expression in lowest terms: $\frac{-8 + \sqrt{32}}{2}$ 48) _____

Section 8.7

49) Simplify the quotient by writing the given number in standard form: $\frac{4 + 3i}{5 + 2i}$ 49) _____

Section 9.2

50) Solve the following equation: $x^2 + 8x - 5 = 0$ 50) _____

1) $\left\{-\frac{1}{3}\right\}$

2) $t = \frac{4}{c-3}$ or $t = \frac{-4}{-c+3}$

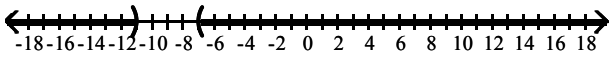
3) 32 m

4) $(-\infty, -2]$

5) $\left\{\frac{1}{4}, -\frac{11}{4}\right\}$

6) No solution

7) $(-\infty, -11) \cup (-7, \infty)$



8) II

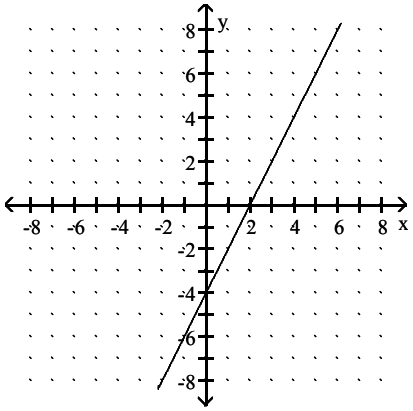
9) $-\frac{11}{5}$

10) Slope $= -\frac{6}{5}$; y–intercept $= \frac{28}{5}$

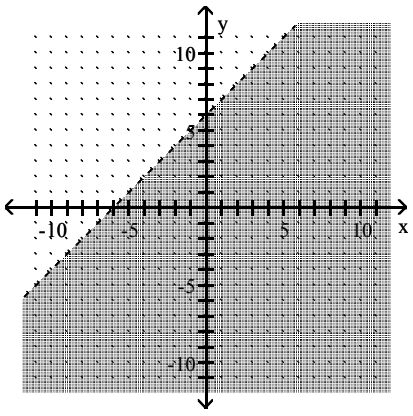
11) $y = -\frac{4}{3}x + 4$

12) 3

13)



14)



15) Not a function

16) 4

17) $f(x) = \frac{6 - 9x^2}{7}$

18) 0

19) $-\frac{15}{x^4}$

20) $\frac{9w^6}{x^2}$

21) –14

22) 8x – 3

23) $1000p^3 - 1$

24) $4m^2 + 20m + 25$

25) $3y^2 + 6y + 11$; remainder 26

26) B

27) A

28) B

29) $(9x + 5y)^2$

30) $(x - 4)(x^2 + 4x + 16)$

31) 4

32) –6, 8

33) $\frac{1}{5x + 2}$

34) $\frac{k}{k - 4}$

35) $\frac{2x - 7}{3x + 7}$

36) $\frac{1}{x + 2}$

37) $\frac{4a + 5b}{a + b}$

38) 3s + 5t

39) {3}

40) 4 hr

41) x^2

42) $\frac{1}{8}$

43) 6

44) $-2k^3q^4\sqrt{3k}$

45) $3\sqrt{6}$

46) 12

47) $\frac{3\sqrt{22}}{11}$

48) $-4 + 2\sqrt{2}$

49) $\frac{26}{29} + \frac{7}{29}i$

50) $\{-4 \pm \sqrt{21}\}$