

Review for MAT 1013 Final (Martin 3rd Ed)

Chapter 1

1. Find the absolute value: $|-27|$ ans: 27
2. Simplify: $12 + (5 \cdot 3 + 20) \div 5$ ans: 19
3. Find the additive inverse or opposite: -34 ans: 34
4. Evaluate when $x = 5$, $y = -2$, and $t = 8$: $\frac{13 - x}{y + 9}$ ans: $\frac{8}{7}$
5. Find the reciprocal: -4 ans: $-\frac{1}{4}$
6. Simplify: $8(3x+9)$ ans: $24x + 72$
7. Simplify: $(7z + 9) - (4z - 3)$ ans: $3z + 12$
8. Write as an algebraic expression:
The product of -30 and the sum of a number and 3 ans: $-30(x+3)$

Chapter 2

1. Solve: $3(4x - 1) = 12$ ans: $\frac{5}{4}$
2. Solve: $\frac{2x}{5} - \frac{x}{3} = 3$ ans: 45
3. Solve: Three times a number, added to 35 is 14. Find the number ans: -7
4. Solve the equation for the indicated variable: $J = ABC$ for B ans: $B = \frac{J}{AC}$

Chapter 3

1. Graph: $y = \frac{3}{5}x - 2$ ans: see p 234

Chapter 4

1. Solve by the substitution method: $x + 4y = 36$
 $2x + 3y = 37$ ans: (8,7)
2. Solve by the addition method: $x + 3y = -17$
 $3x + 2y = -2$ ans: (4,-7)
3. Evaluate: $\begin{vmatrix} 2 & -7 \\ 3 & 5 \end{vmatrix}$ ans: 31

Chapter 5

1. Simplify: $(-3x^8y)(4x^5y^4)$ ans: $-12x^{13}y^5$

2. Simplify: $\frac{9a^4b^7}{27ab^2}$

ans: $\frac{a^3b^5}{3}$

3. Write in scientific notation: 0.0024

ans: 2.4×10^{-3}

Chapter 6

1. Factor: $y^2 + 4y - 32$

ans: $(y+8)(y-4)$

2. Factor: $15x^2 + 6x - 5xz - 2z$

ans: $(5x+2)(3x-z)$

3. Factor: $2x^2 + 10x + 12$

ans: $2(x+3)(x+2)$

4. Factor: $4z^2 - 15z + 9$

ans: $(4z-3)(z-3)$

5. Factor: $4y^2 - 49$

ans: $(2y+7)(2y-7)$

6. Factor: $64x^3 + 27$

ans: $(4x+3)(16x^2 - 12x + 9)$

7. Factor: $y^3 - 8$

ans: $(y-2)(y^2 + 2y + 4)$

8. Solve by factoring: $x^2 + 3x = 10$

ans: $\{-5, 2\}$

Chapter 8

1. Find $f(-4)$ when $f(x) = 4x^2 - 4x + 4$

ans: 84

2. The cost of having a car towed is given by the linear function $C(x) = 3x + 70$, where $C(x)$ is in dollars and x is the number of miles the car is towed. Find the cost of having a car towed 14 miles.

ans: \$112

Chapter 9

1. Solve: $x + 3y + z = 6$
 $3x + y - z = -2$
 $2x + 2y - z = 1$

ans: $(-1, 2, 1)$

Chapter 10

1. Find the cube root: $\sqrt[3]{-125x^{36}y^{36}}$

ans: $-5x^{12}y^{12}$

2. Simplify: $\frac{\sqrt{63x^9}}{\sqrt{7x}}$

ans: $3x^4$

Chapter 11

1. Use the quadratic formula to solve: $x^2 - 13x + 36 = 0$

ans: $\{4, 9\}$

2. Sketch the graph: $f(x) = (x-2)^2 + 5$

ans: see # 13, p 781