Chapter 1 – Algebra Basics

Classifying Numbers (page 17)

1) False. 5 is not a composite number.
2) True.
3) False. 20 is not an odd number.
4) False. –7 is not a prime number.
5) True.
6) False. 43 is not a composite number.

Classifying Numbers (page 19)

1) integer, rational, real
2) irrational, real
3) integer, rational, real
4) irrational, real
5) rational, real
6) whole, integer, rational, real

Add and Subtract Numbers (page 21)

1) 14
2) –2
3) 3
4) 5
5) 8
6) –6

Multiply and Divide Numbers (page 23)

1) 5
2) 6
3) 5
4) $-2x$
5) 12
6) –2

Order of Operations (page 27)

1) $3 - (-3) = 6$
2) $2 \times 3 + (-2)^3 = 6 + (-8) = -2$
3) $\frac{(-2)}{2} = -1$
4) $2 - 15 = -13$
5) $2 \times 3 = 6$
6) $2^2 = 4$

The Distributive Property (page 31)

1) $2 \times 3 - 2 \times 5 = -4$
2) $3 \times 7 - 3 \times 4 = 9$
3) $5 \times 1 + 5 \times 2 = 15$
4) $(-1) \times 10 + (-1) \times 4 = -14$
5) $(-2) \times 3 - (-2) \times 2 = -2$
6) $(-5) \times (-1) - (-5) \times 4 = 25$

The Inverse Property (page 33)

1) –5
2) –7
3) 17
4) a
5) $-\frac{3}{4}$
6) 1

a) $\frac{1}{9}$
b) $\frac{4}{5}$
c) $\frac{1}{x}$
d) $\frac{b}{a}$
e) $-\frac{1}{8}$
f) $-\frac{4}{3}$

Add and Subtract Variables (page 37)

1) $-3x^3 + x^2 + 5x$
2) $2x + 7$
3) $2x^5 + x^4 + 3x$
4) $2x$
5) 0
6) $-3x + 5$

Multiply and Divide Variables (page 39)

1) $12x^5$
2) $-8y^2$
3) $24x^7y$
4) $6x^2y^2$
5) $-10z^{-3}$
6) $6x^{-1}y^7 = \frac{6y^7}{x}$

a) $2x$
b) $5y^3$
c) $4y^2$
d) $3x^2y^2$
e) $2x$
f) $2a^2b^3$

Chapter 2 – Working With Fractions and Exponents

Convert Improper Fractions to Mixed Numbers (page 47)

1) $1\frac{1}{4}$
2) $3\frac{1}{2}$
3) 6
4) $3\frac{2}{3}$
5) $2\frac{1}{2}$
6) 3

a) $\frac{5}{2}$
b) $\frac{31}{3}$
c) $\frac{22}{5}$
d) $\frac{10}{7}$
e) $\frac{23}{9}$
f) $\frac{107}{10}$

Multiply and Divide Fractions (page 49)

1) $\frac{3}{8}$
2) $\frac{14}{3}$
3) $\frac{2}{5} \times \frac{1}{4} = \frac{2}{20} = \frac{1}{10}$
4) $\frac{3}{5} \times \frac{7}{2} = \frac{21}{10}$
5) $\frac{1 \times 5 \times 3}{2 \times 6 \times 4} = \frac{15}{48} = \frac{5}{16}$
6) $\frac{1}{2} \times \frac{5}{6} \times \frac{4}{3} = \frac{1 \times 5 \times 4}{2 \times 6 \times 3} = \frac{20}{36} = \frac{5}{9}$

Find the Least Common Denominator (page 51)

1) $\frac{3}{6}, \frac{2}{6}$
2) $\frac{5}{10}, \frac{3}{10}$
3) $\frac{20}{35}, \frac{14}{35}$
4) $\frac{6}{3}, \frac{1}{3}$
5) $\frac{9}{12}, \frac{8}{12}$
6) $\frac{16}{100}, \frac{25}{100}$

Exponent Basics (page 55)

1) $2 \times 2 \times 2 \times 2 = 16$
2) $3 \times 3 \times 5 \times 5 \times 5 = 9 \times 125 = 1125$
3) $(-3) \times (-3) \times (-3) = -27$
4) $-(4 \times 4) = -16$
5) $(3 \times 7) \times (3 \times 7) = 441$
6) $7 \times 7 \times 7 \times 7 \times 7 = 16807$