

Section 3.2: Functional Notation

“There’s no such thing as talent; you just have to work hard enough.”

Evaluate:

1) $f(5)$; $f(x) = 4x - 3$

2) $f(4)$; $f(x) = 6 - 8x$

3) $f(-2)$; $f(x) = 5 - x^2$

4) $g(3)$; $g(x) = x^2 - 2x + 6$

5) $g(-1)$; $g(x) = x^2 + 4x - 9$

6) $h(-2)$; $h(x) = 3x^2 - 4x - 5$

7) $F(-3)$; $F(x) = -2x^2 + 5x - 6$

8) $G(4)$; $G(x) = -x^2 - 7x + 2$

9) $H(3)$; $H(x) = -4x^2 + 3x - 7$

10) $h(2)$; $h(x) = x^3 + x^2 - 2x + 6$

11) $f(1)$; $f(x) = -5x^3 + 8x^2 - 3x + 4$

12) $f(-1)$; $f(x) = 2x^4 + 4x^3 - 6x^2 + 9x - 10$

13) $F\left(\frac{1}{2}\right)$; $F(x) = 10x + 4$

14) $F\left(\frac{1}{3}\right)$; $F(x) = 6x - 1$

15) $h(3)$; $h(x) = \frac{(x+3)}{(x-2)}$

Section 8.3: Dividing Fractions (Rational Expressions)

“I was so much older then; I’m younger than that now.”

Divide:

$$1) \frac{2}{3} \div \frac{4}{9}$$

$$2) \frac{-5}{6} \div \frac{10}{3}$$

$$3) \frac{-9}{11} \div \frac{-3}{22}$$

$$4) \frac{x^2}{y} \div \frac{x^2}{y}$$

$$5) \frac{a^4}{b^3} \div \frac{a^2}{b}$$

$$6) \frac{5a}{7b} \div \frac{a^4}{21b^2}$$

$$7) \frac{4xy^2}{3ab^2} \div \frac{4xy^2}{6ab}$$

$$8) \frac{9pq^2}{10rs^2} \div \frac{12p^4q^3}{rs}$$

$$9) \frac{27cd^2}{10ab} \div \frac{3cd}{5ab}$$

$$10) \frac{60s^2t}{7uv} \div \frac{10st}{u^2}$$

$$11) \frac{8a^2b}{27ab} \div \frac{-24ab}{9}$$

$$12) \frac{-15x^2y^2}{36ab} \div \frac{-5xy^2}{12ab}$$

$$13) \frac{p^5q^4r^2}{ab} \div \frac{p^2q^3r^4}{a^4b}$$

$$14) \frac{-24a^6b^8c^{10}}{5ab^2} \div \frac{-12b^4c^6}{ac}$$

$$15) \frac{4x^2y^3z^4}{5abc} \div \frac{-2xy^2z^4}{15ab}$$

$$16) \frac{25x^2y}{21a^4b^3} \div \frac{-5xy}{a^3b^2}$$

$$17) \frac{-72r^8s^7}{5pq} \div \frac{9r^4s^5}{10p^2q^2}$$

$$18) \frac{14x^2yz^3}{11a^2b^3c^4} \div \frac{-28xyz}{22ab^2c^3}$$

$$19) 25xy \div \frac{5x}{3y}$$

$$20) \frac{10a^2b}{7xy} \div 5abc$$

$$21) \frac{-36xy^4}{11ab} \div \frac{-9xy}{22a}$$

$$22) \frac{15rs^2}{7pq} \div \frac{5rs}{14}$$

$$23) \frac{-16pq}{9a^2b} \div \frac{-4pq^2}{3ab}$$

$$24) \frac{2}{3x} \div \frac{4}{6x}$$

$$25) \frac{x+1}{x} \div \frac{x^2-1}{x^2}$$

$$26) \frac{3x-21}{5} \div \frac{x-7}{15}$$

$$27) \frac{xy^2}{x^2-x-12} \div \frac{xy}{x^2-9}$$

$$28) \frac{6a^2}{7b^3} \cdot \frac{3ab}{5} \div \frac{10a^3b^2}{14a}$$

Section 8.4: Adding or Subtracting Fractions (Rational Expressions)

“Three out of two people have trouble with fractions.”

Combine:

$$1) \frac{2}{5} + \frac{3}{5}$$

$$2) \frac{4}{3} + \frac{2}{3}$$

$$3) \frac{3}{10} - \frac{1}{10}$$

$$4) \frac{7}{9} - \frac{2}{9} - \frac{1}{9}$$

$$5) \frac{1}{2} + \frac{1}{3}$$

$$6) \frac{1}{2} + \frac{1}{4}$$

$$7) \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$$

$$8) \frac{1}{4} + \frac{5}{6}$$

$$9) \frac{5}{6} + \frac{7}{12}$$

$$10) \frac{3x}{4} + \frac{x}{12}$$

$$11) \frac{8y}{3} + \frac{4y}{7}$$

$$12) \frac{5}{6z} - \frac{7}{4z}$$

$$13) \frac{2}{a} - \frac{3}{b}$$

$$14) \frac{4}{a^2} - \frac{5}{a}$$

$$15) \frac{6}{x} - \frac{5}{3x}$$

$$16) \frac{7}{3b^2} + \frac{1}{6b}$$

$$17) \frac{4}{9y} + \frac{5}{12y}$$

$$18) \frac{1}{2} + \frac{1}{3}$$

$$19) \frac{3}{x^2} - \frac{2}{x} - \frac{1}{2x}$$

$$20) \frac{5}{6a} - \frac{3}{8a}$$

$$21) \frac{9}{3c} - \frac{1}{9c^2}$$

$$22) \frac{1}{12r} - \frac{5}{6r}$$

Section 11.2: Solving a System of 2 Equations in 2 Unknowns by
Use of the Substitution Method

Solve the following systems of equations by use of the Substitution Method.

1) $3x + y = 15$
 $y = 3$

2) $5x - 2y = 7$
 $y = 4$

3) $2x - 3y = 4$
 $x = 5$

4) $6x + 4y = 14$
 $x = 1$

5) $y = x + 2$
 $x + y = 4$

6) $y = x - 3$
 $x + 2y = 6$

7) $x = y + 5$
 $2x - y = 12$

8) $x = y - 1$
 $3x + 2y = 17$

9) $x + y = 6$
 $4x - 3y = 10$

10) $x + y = 5$
 $5x - 4y = -2$

11) $2x + y = 5$
 $6x - y = 3$

12) $3x + y = 10$
 $7x - 3y = 2$

13) $5x + 3y = 6$
 $4x + 2y = 6$

14) $3x - 2y = 2$
 $2x + 4y = 28$

15) $x - y = -1$
 $8x - 5y = 13$

16) $2x - y = 2$
 $9x - 10y = 5$

17) $3a - 2b = 4$
 $11a - 20b = 2$

18) $5a - 3b = 1$
 $10a - 7b = -1$

19) $4r + s - 10 = 0$
 $5r + 2s - 14 = 0$

20) $2r - s - 5 = 0$
 $4r - s - 1 = 0$

Section 2.2: Order of Operations

- 1) 34
- 3) 0
- 5) 5
- 7) 20
- 9) 40
- 11) 6
- 13) 19
- 15) 28
- 17) 8
- 19) 17
- 21) 2
- 23) 1
- 25) 2
- 27) -5
- 29) -1
- 31) -17
- 33) 79
- 35) 26
- 37) 10
- 39) -96

Section 3.1: Evaluating Algebraic Expressions

- 1) 12
- 3) 18
- 5) 48
- 7) 36
- 9) 1
- 11) 8
- 13) -9
- 15) -28
- 17) 9
- 19) 12
- 21) -8
- 23) 4

- 1) 1
- 3) $\frac{1}{5}$
- 5) $\frac{5}{6}$
- 7) $\frac{7}{8}$
- 9) $\frac{17}{12}$
- 11) $\frac{8y}{21}$
- 13) $\frac{(2b-3a)}{ab}$
- 15) $\frac{13}{3x}$
- 17) $\frac{31}{36y}$
- 19) $\frac{(6-3x)}{2x^2}$
- 21) $\frac{(27c-1)}{9c}$
- 23) $\frac{(33s+20)}{24s^2}$
- 25) $\frac{-43p}{30}$
- 27) $\frac{(7t-15)}{5t^2}$
- 29) $\frac{(3v-10)}{10}$
- 31) $\frac{(4x+15)}{30x}$

Section 9.1: The Pythagorean Theorem

- 1) AB=5
- 3) c=17
- 5) b=10
- 7) AC=9
- 9) a=12
- 11) AB=10
- 13) $c=\sqrt{2}$

