

9th Grade Assignments – Week #3

Individual Work

- Choose the best problems for you to work on from **Algebra Basics – Problem Sets #5-7**.

Group Assignment:

for Tuesday or Thursday

- (1) John and Emily are siblings. John has 5 times as many sisters as brothers, and Emily has 3 times as many sisters as brothers. How many children are in the family?
- (2) Stick Puzzles. With each puzzle, every stick must be part of a square. No two sticks may be placed in the same location (or side-by-side).
 - a) Starting with the arrangement of sticks shown here, move four sticks so that you end up with exactly five squares.
 - b) Use 11 sticks to make 11 squares.
 - c) Use 8 sticks to make 14 squares.
- (3) Saints and Crooks
In a certain village everyone is either a saint (who always tells the truth), or a crook (who always lies). Two men, Bob and Bill, who are both from this village, approach you. Bob says, “At least one of us is a crook.” What are Bob and Bill?
- (4) Socks in the Dark. A dresser is filled with many white, black, green and red socks. If it is dark so you cannot see, how many single socks do you need to pull out in order to guarantee...
 - a) that you get one pair of matching socks?
 - b) that you get two pairs of matching socks?
 - c) that you get three pairs of matching socks?



Problem Set #5

Section A

Simplify.

- 1) $4 + 3 \cdot 9$
- 2) $6 - 5 \cdot 3 + 20$
- 3) $7 \cdot 3 + 12 \div (9 - 10)$
- 4) $30 - 10 \cdot 3^2$

Solve.

- 10) a) $6X = -\frac{4}{5}$ b) $6 - X = -\frac{4}{5}$
- 11) a) $-2\frac{2}{3}X = -\frac{4}{7}$ b) $X - 2\frac{2}{3} = -\frac{4}{7}$
- 12) a) $-X = -13$ b) $5 - 2(X + 4) = 0$
- 13) a) $\frac{-5}{3X+1} = \frac{2}{2X-3}$ b) $-8X + 3 - 5X = 7 + 2(X - 7)$
- 14) $5 + 3(X - 2) - 4 = 6 - 5(2X - 3)$

Section B

Solve.

- 15) $\frac{7}{9} - \frac{4}{9}(6X - \frac{3}{4}) = \frac{3}{5}X - \frac{1}{3}$
- 16) $4X - 7 - 4(X + 5) + 5 - 3(4X - 2) - 6 = 3X - 30 + 9(X - 2) - 8$

Problem Set #6

Section A

Solve for x in terms of Y.

- 1) $X + 5Y = 4$
- 2) $4X = 3Y$
- 3) $3Y = 3 + X$
- 4) $3X - 12Y = 9$
- 5) $3X + 7Y = 5$

Evaluate each expression

given that $x = 3$; $y = -2$.

- 5) $5y - 6x + 3$
- 6) $y^2 - xy + 4 - (\frac{x}{y})^3$

Unusual solutions.

Solve.

- 7) $12 + 3(2X - 4) = 6X$
- 8) $6 = 9 - (4X + 3) - 2X$
- 9) $\frac{12}{4X+3} = \frac{3}{X-3}$

Section B

Solve.

- 11) $8 + 2(3X - 5) - X - 4(X + 7) = 5 - (2X - 7) + 8(3 - 2X)$
- 12) $\frac{2}{5}(2X - \frac{1}{2}) = \frac{2}{3}X + \frac{1}{3}$
- 13) $\frac{2}{5} + \frac{1}{2}(\frac{4}{5}X - 1) = -\frac{1}{5}(\frac{5}{6}X - 2\frac{1}{2}) - 1\frac{1}{2}$

Solve.

- 6) $5X + 3 = 12X - 67$
- 7) $14 - (3X + 2) = 3X$
- 8) $\frac{-6}{2X+5} = \frac{-4}{4X-3}$
- 9) $\frac{1}{5}X - 3 = \frac{2}{5}(X + 1)$
- 10) $3(X - 2) + 1 = 4X - 2$

Problem Set #7

Section A

Solve for x in terms of Y.

- 1) $2X + Y = 8$
- 2) $Y = 4X - 12$
- 3) $Y = \frac{2}{3}X + 5$
- 4) $3Y + 7X = -3$
- 5) $\frac{3}{4}X - Y = -3$
- 6) Solve for C
 $F = \frac{9}{5}C + 32$

Solve.

- 7) $5X + 1 = 7X - 8$
- 8) $3X - 4(X + 2) = 5 - 5(2X - 1)$
- 9) $2\frac{1}{3}X + 3 = 5X - 1\frac{5}{6}$
- 10) $\frac{1}{5x+2} = \frac{2}{x+1}$

Section B

Solve.

- 11) $5X + 5 - 2(X - 3) - 5 - 6(-X - 2) - 1 = 3X - 30 - (4X - 7) - 8$
- 12) $\frac{5X + 6}{2} = \frac{2X + 9}{3}$
- 13) $\frac{4}{7} - \frac{3}{7}(\frac{2}{3}X - 3) = \frac{3}{8} - 4(\frac{4}{7}X - \frac{3}{5}) + 2X$
- 14) $\frac{2}{5}X - 8\frac{1}{8} - \frac{3}{4}(\frac{14}{15}X - 5\frac{5}{9}) = 2\frac{7}{10}X - 2\frac{5}{6} + \frac{3}{4}(X + 5\frac{1}{6})$