

Algebra A DSPA - General Guidelines

The district assessments in this booklet will be given following these guidelines:

Calculators can be used on all DSPA's.

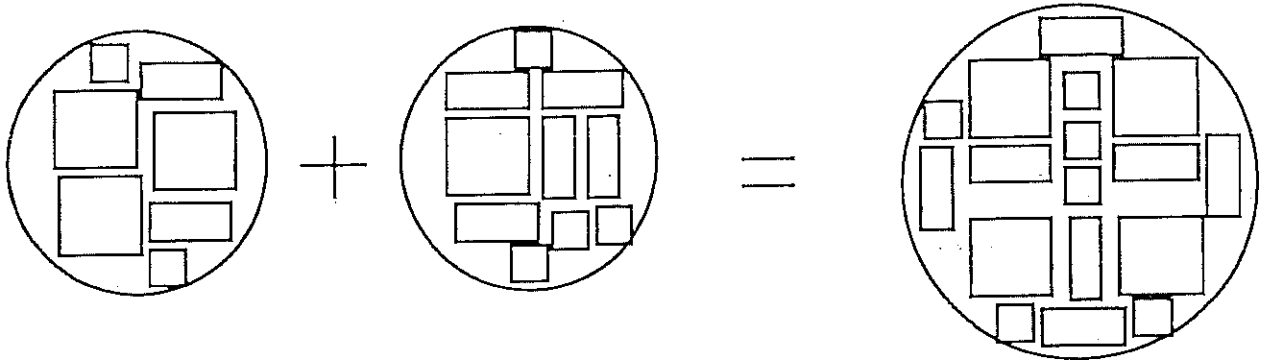
- MA-AA-01 Algebraic Expressions & Area** - To be given after completion of Unit 2.
- MA-AA-02 Graphing Linear Equations & Problem Solving** - To be given after completion of Unit 3.
- MA-AA-03 Solving Linear Equations & Problem Solving** - To be given after completion of Unit 4.
- MA-AA-04 Proportional Reasoning** - To be given after completion of Unit 5.
- MA-AA-05 Data Analysis & Probability** - To be given sometime during the second semester. The teacher may need to do a review of measures of central tendency and probability before giving the assessment.

Enter the percent score for each student in PowerGrade after each assessment.

Name _____ Class _____ Date _____

Algebra A DSPA - MA-AA-01 Algebraic Expressions and Area

1. (15 pts.) Write an algebraic equation representing this picture:



2. (20 pts.) Simplify the following expressions by combining like terms.

a) $2x + 6x^2 + 10 + 4x^2 + 3x + 6$ b) $-10 + 3x^2 - x + 5x^2 + 6 - 5x$

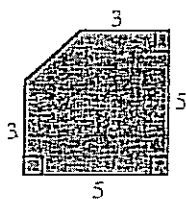
c) $6x^2 + 4 + x - x - 4x^2 + 9$ d) $(6x^2 - 2x + 5) + (2x^2 - 7x - 11)$

3. (20 pts.) Use the Distributive Property to rewrite each of the following expressions.

a) $3(x + 6)$ b) $2(7y - 4)$

c) $5(3x - 2)$ d) $-1(4x^2 - 3x + 2)$

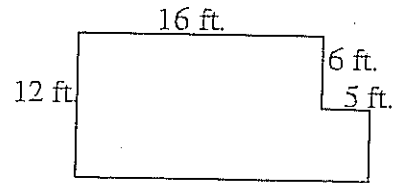
4. (10 pts.) Find the area of the shaded region. Show all sub-problems.



Algebra I - MA-A1-01 (page 2)

5. (20 pts.) The diagram to the right is a floor plan of a living room that needs new baseboard (trim board that goes along the bottom of every wall in the room). The room also needs new carpet.

How much baseboard is needed?
Label your answer. _____
Is this an example of perimeter or area?



How much carpet is needed?
Label your answer. _____
Is this an example of perimeter or area?

6. (15 pts.) Find the area of the light gray shaded region. Show all subproblems. Remember the formula for area of circle is $A = \pi r^2$



Area of the light gray shaded region is _____

What is the diameter of the circle above? _____

What is the circumference of the circle above? _____

Remember the formula for circumference of a circle is:
 $C = \pi d$ or $C = 2 \pi r$

Name _____ Class _____ Date _____

Algebra A DSPA - MA-AA-02 Graphing Linear Equations & Problem Solving

1. (10 pts.) **Circle** the rule that describes the table below. **Explain** how you made your decision.

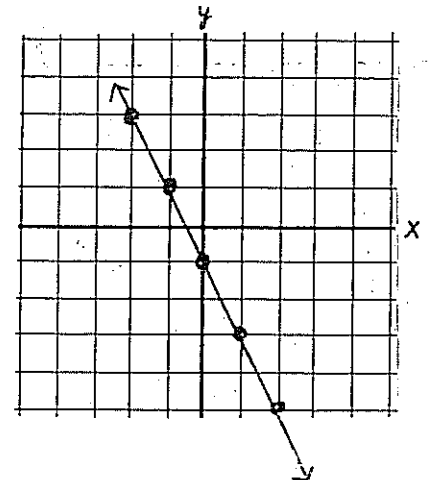
$y = x - 2$ $y = 2x + 3$ $y = -3x - 1$ $y = x - 7$

x	2	1	0	-1	-2
y	7	5	3	1	-1

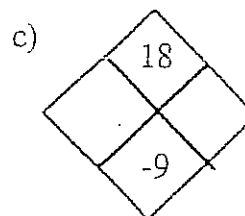
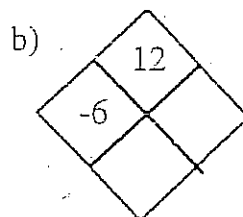
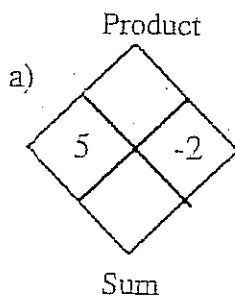
Explanation:

2. (15 pts.) Use the graph at right to answer each of the following questions.

- a) Point A is on the line. If the **x-coordinate** of point A is -2, what is its **y-coordinate**? _____
Label point A on the graph
- b) Point B is on the line. If the **y-coordinate** of point B is -3, what is its **x-coordinate**? _____
Label point B on the graph
- c) Label the point where the graph crosses the x-axis C. Estimate the coordinates (ordered pair) of point C. _____



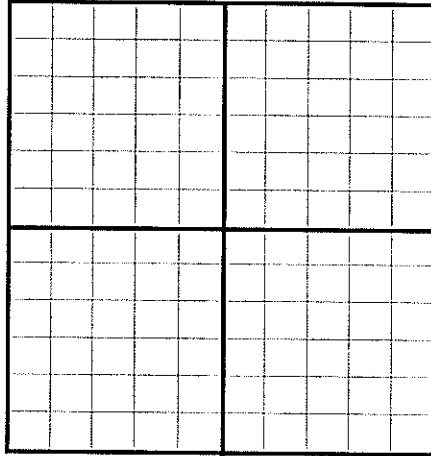
3. (15 pts.) Solve each of these Diamond Problems.



4. (20 pts.) Complete each of the following tables, then use the table to neatly graph the equation. Make sure you draw the line through the points with arrows.

$$y = 2x - 1$$

x	2	1	0	-1	-2
y					



- 5) (20 pts.) Solve the following problem by making a Guess and Check table.

The perimeter of a triangle 34 units. The second side is two more than the first side and the third side is twice the length of the first side. What are the lengths of the sides?

Guess (First Side)	2 nd Side	3 rd Side	Perimeter	Too High or Too Low

6. (20 pts.) Make a Guess and Check table to solve the following problem.

Bill and Jill are twins. Tom is three years older than the twins. The three students' ages total 48 years. How old is each person?

Name _____ Class _____ Date _____

Algebra A DSPA - MA-AA-03 Solving Linear Equations & Problem Solving

1. (10 pts.) Finish filling in the top row of the Guess and Check table. Using the table to help write an equation to solve this problem. Let n = the number of nickels.

Maya has three times as many dimes as nickels. She has four more quarters than nickels. If the value of the coins is \$2.80, how many nickels does Maya have?

# of nickels				Value of dimes		Total Value	Check

2. (10 pts.) Solve the problem **and** write an equation. You may do this in either order. Be sure to show all of your work and to **state your answer as a sentence**. You may fill in the chart to help you define the variables and set up the equation.

A 24 foot board is cut into two pieces. One piece is 10 feet longer than the other. How long is each piece?

Equation:

Length of shorter piece: _____ Length of longer piece: _____

3. (20 pts.) Solve each of these Diamond Problems.

Product

a)

Sum

b)

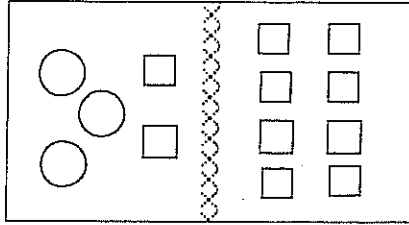
c)

d)

Algebra A - MA-AA-03 (page 2)

4. (10 pts.) a) Write an equation represented by this cups and tiles picture.

Equation:



- b) How many tiles are in each cup?

5. (40 pts.) Solve each of the following equations for x . **Check your answer.**

a) $10x = 40$

e) $3x - 2 = 10$

b) $x - 1 = 3$

f) $4(x + 2) = 24$

c) $-3x = 21$

g) $3x + 15 = x + 7$

d) $2(x + 7) = -8$

h) $2x + 1 + 3x + 3 = 29$

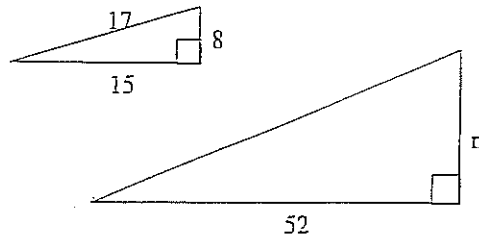
6. (10 pts.) I'm thinking of a number. 7 more than my number is 19. What is the number I'm thinking of?

Did you figure out this number in your head (maybe by guessing and checking), or did you set up an equation and solve it? If you used an equation, what was your equation?

Name _____ Class _____ Date _____

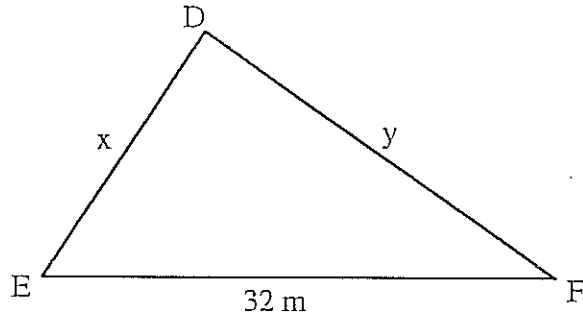
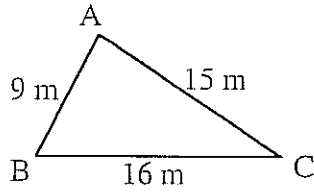
Algebra A DSPA - MA-AA-04 Proportional Reasoning

1. (20 pts.) The two triangles below are similar:



- a) Explain what “similar” means in this context.
- b) Write **two** equations involving ratios that you could use to solve for n , the length of the marked unknown side. **Do not solve** the equations.
2. (40 pts.) Rewrite each of the following questions as an equation involving ratios (write a proportion), and then solve your equation.
- a) If a 20-ounce box of raisin bran costs \$2.80, what should a 30-ounce box cost?
- b) What percent of 40 is 30?
- c) A 12 ounce can of cola contains 354 milliliters. How many milliliters are in a gallon (128 oz.)?
- d) What is 20% of 60?
3. (10 pts.) If 50 feet of wire weighs 22 pounds, how much would you expect 100 feet of wire to weigh?

4. (10 pts.) Triangle ABC is similar to triangle DEF. Solve for the unknown sides.

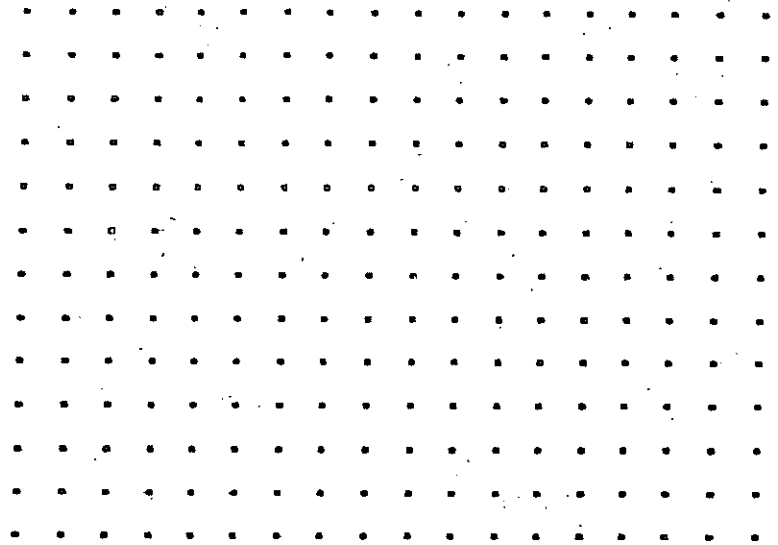
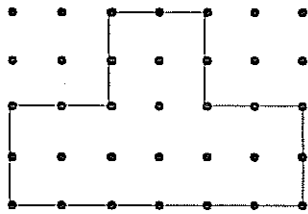


x =

y =

Either show your proportions OR explain how you got your answers.

5. (20pts.) a) Enlarge this figure (on the dot paper below) by making all the corresponding sides two times as long.



b) Use part (a) to find each of the following values.

Perimeter_{original} = _____

Area_{original} = _____

Perimeter_{new} = _____

Area_{new} = _____

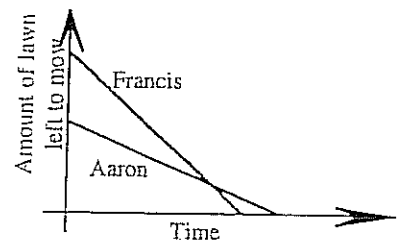
$$\frac{P_{\text{new}}}{P_{\text{original}}} = \underline{\hspace{2cm}}$$

$$\frac{A_{\text{new}}}{A_{\text{original}}} = \underline{\hspace{2cm}}$$

Algebra A DSPA - MA-AA-05 Data Analysis & Probability

1. (20 pts.) A bag contains five blue marbles, three green marbles and four yellow marbles. If one marble is drawn out at random, what is the probability that it is:
- a) yellow?
 - b) red?
 - c) either blue or green?
 - d) A boy reached in the bag, grabbed a marble, and replaced it. He did this 20 times. The boy said that he grabbed a green marble 18 times, and a blue marble twice. Do you think this is likely? Explain.

2. (20 pts.) Examine the graph at right carefully.



- a) Write a sentence or two explaining what the graph tells us.
- b) Who has more lawn to mow? Explain how you know.
- c) Who finishes mowing first? Explain how you know.
- d) Give a sound reason for why Francis's graph descends (drops) more quickly than Aaron's.

3. (20 pts.) Find the mean, median, mode and range for the following quiz scores.

20, 25, 22, 30, 25, 15, 29

mean: _____ median: _____
 mode: _____ range: _____

Algebra A - MA-AA-05 (page 2)

4. (20 pts.) If you roll one six-sided die,
- a) What is the probability that the number you roll will be a one?

 - b) What is the probability that the number you roll will be odd? Justify your answer.

5. (20 pts.) Pedro recorded the following high/low Fahrenheit temperatures of Billings, Montana during a particular Sunday, 105/66; Monday, 101/62; Tuesday, 92/55; Wednesday, 88/52; Thursday, 100/59; Friday, 91/55; Saturday, 96/55.

- a) Find the mean daily high temperature for the week. Round to the nearest tenth if necessary.

- b) Make a double line graph of these temperatures.

