2020-2021 Summer Math Packet

(Integrated 1 (Algebra 1) → Integrated 2 (Algebra 2))

This summer packet is designed to help you retain those skills that you have learned! If you do not remember how to do a skill, you can look at your notes from this past year, you can ask a friend/parent/guardian, or you can go to Khan Academy for a video (www.khanacademy.com). If you still can't figure out what to do, reach out to a MSA math teacher.

When completing this packet, you should do as much as you can without the use of a calculator. Remember it is important that you show all work when solving problems. If you use a separate piece of paper to show work, be sure to attach it to the packet when you are done.

Try your best to not leave the entire packet until the end of the summer, or you will forget the concepts from the previous year. The packet contains a suggested work plan to help you complete the packet over the summer.

Bring your packet with you to your new math class in the fall. You will receive a grade during the first week of class.

MSA Math Department

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Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

1) Solve for the variable. $8a - 3(a + 8) = 66$	5) Convert from point-slope into slope-intercept form. $y = 6(x + 7) - 5$
2) Find the product. No calculator. 67.8×0.45	6) Solve the inequality and graph the solution on a number line. $-6x \geq 24$![number line from -5 to 5] -5 -4 -3 -2 -1 0 1 2 3 4 5
3) Use the order of operations to solve. $7 + 8(3^2 - 2)$	7) Find the circumference of a circle with a radius of 2 cm. Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.
4) Write the general form for the four symbolic rules in different forms Slope-intercept: X-intercept: Point-slope: Standard:	8) Find the intersection point using **elimination**. $c + 2d = 14 \qquad c - 3d = -11$

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Week 2: June 15 - 19

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

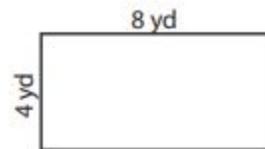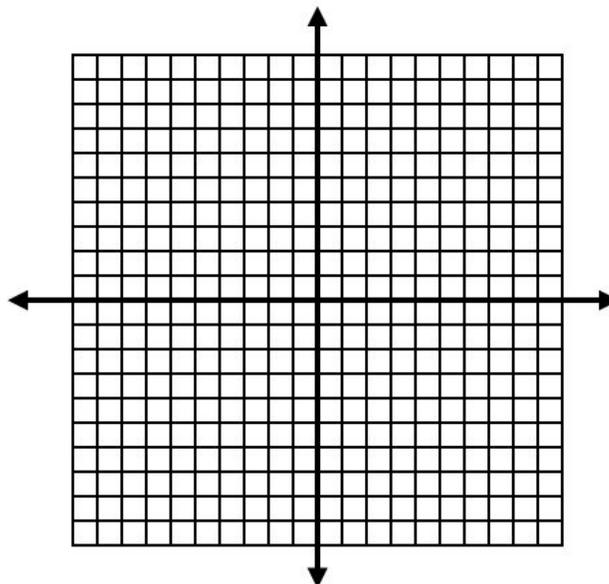|	
9) Solve for the variable. $$\frac{4}{9} - \frac{2}{5}b = 4$$	13) Set up a proportion and solve. In Spanish class, the girl to boy ratio is 5 to 8. If there are a total of 65 students, how many girls are there?
10) Find the x-intercept, the y-intercept, and the rate of change (slope). $$2x + 6y = 4$$	14) Use the order of operations to solve. $$4^3 - (24 \div 6) + 8$$
11) Write four symbolic rules in different forms for a line with a y-intercept of 12 and a rate of change of 4. (hint: refer back to week 1 #4)	15) Find the perimeter and area. Don't forget to label your answers. 8 yd 4 yd Perimeter: Area:

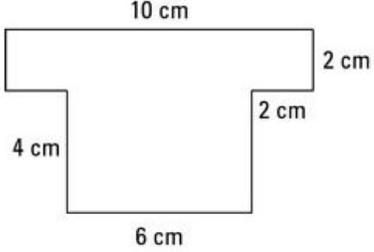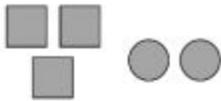12) Make a table and graph for the following symbolic rule.   y = 3x - 9

X	y

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

16) Solve for the variable. $5(g + 3) - (g - 3) = g + 1$	20) Find the circumference of a circle with a diameter of 7.5 in. Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.
17) Find the intersection point using **substitution**. $x = y + 8$ $y - 3x = 10$	21) Find the **FACTORS** of 48.
18) Find the x-intercept, the y-intercept, and the rate of change (slope). $y = -5(x - 2) + 3$	22) Find the difference. 857,288 - 38,927
19) Find the combined area. Don't forget to label your answer. 10 cm 2 cm 2 cm 4 cm 6 cm	23) Melissa is making clothes for her dolls. She has $\frac{7}{8}$ yard of fabric. Each doll shirt requires 2/7 of a yard of fabric. How many shirts can she make for her dolls?

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

24) Mike made a 9-inch sub sandwich. He needs to cut it into ⅔ inch pieces. How many pieces will he be able to cut?	28) Solve for the variable. $$2(k + 1) - 4 = 18$$
25) What is the **Least Common Multiple** (LCM) of 8 and 12?	29) Find the x-intercept, the y-intercept, and the rate of change. $$y = -\tfrac{1}{2}(x - 5) - 2$$
26) Fill in the blanks. For every _____ squares, there are _____ circles. 	30) Find the intersection point using substitution or elimination. $$2p - 6j = -8 \qquad 4p + 12j = 8$$
27) A red string of holiday lights blinks once every 3 seconds, while a string of blue lights blink once every 4 seconds. How many times will both sets of lights blink at the same time in 1 minute (60 seconds)?	31) Find the area of a circle with a radius of 7 meters. Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

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32) Three students earned $48.76 at the bake sale. The students split the earnings evenly, how much did each student receive?	36) Find the x-intercept, the y-intercept, and the rate of change (slope). 4x - 3y = 15
33) A worm travels 1, 250 millimeters. How many meters did the worm travel?	37) Write 4 symbolic rules in different forms for a line with a rate of change of -2 which goes through the point (-1, 8).
34) Finish the table.	38) Set up a proportion and solve. A plane flew at a constant speed and traveled 760 miles in 5 hours. How many miles could the plane travel in 3 hours?
35) Solve for the variable. $\frac{2}{3}(8h-15)=\frac{7}{9}$	39) Convert from x-intercept form into slope-intercept form. $y=-\frac{7}{9}\left(x+\frac{27}{14}\right)$

Table for problem 34:

Milkshakes	Cost
1	0.25
2	0.50
3	?
4	?

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

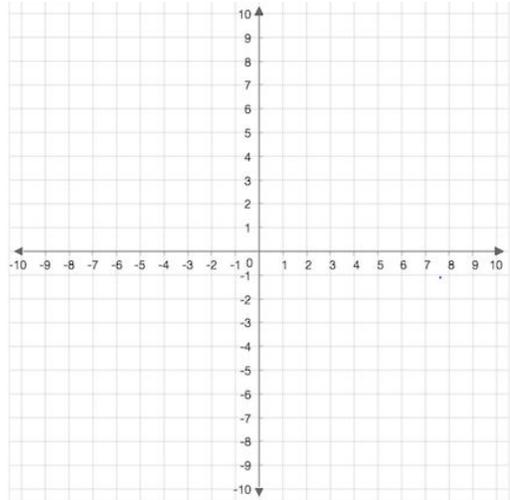40) Solve the inequality and graph the solution on a number line.
$$9 - 4d \geq -3$$
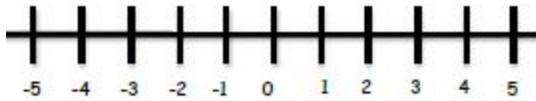
44) Find the area of the trapezoid. Don't forget to label your answers.

4 cm

5 cm

9 cm
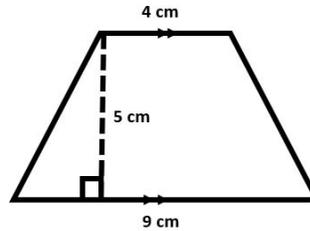
41) Set up a proportion and solve.

Robin can clean 72 rooms in 6 days. How many rooms can she clean in 9 days?
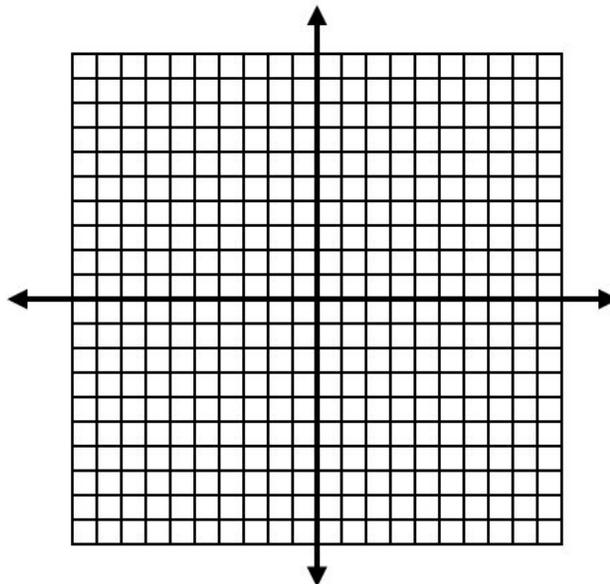
45) Graph the equation without making a table.
$$y = \tfrac{3}{4}x - 8$$

42) What is the area and circumference of the partial circle? Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.

16 yd

43) Make a table and graph for the following symbolic rule. $y = 2(x + 4) - 7$

x	y

Week 7: July 20 - 24

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

46) Write 4 symbolic rules in different forms for a line which goes through the point (-6, -4) and the point (3,8). (HINT: find the rate of change first)

50) Evaluate the expression
$$3^3 + 6 (2 + \frac{1}{2})$$

47) What is the area and circumference of the partial circle? Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.
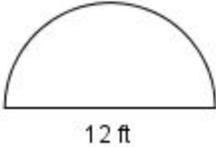
12 ft

51) At Saturday night's football game there were 18 less fans than half the fans at Friday night's game. There were "x" fans at Friday's game. Write an expression to represent the number of fans at Saturday's game.

48) A gumball machine contains 23 green gumballs, 52 red gumballs, 34 blue gumballs, 61 yellow gumballs, and 30 pink gumballs. What percentage of the gumballs is red?

52) A box of 12 tacos cost $9.99. At this rate, how much does one taco cost?

49) Toys R Us is having a 38% off sale on all of their backpacks. If a backpack normally costs $22.00, how much will it be on sale?

53) What is the **Greatest Common Factor** of 14 and 42?

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

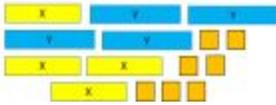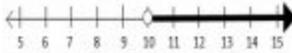|	
54) Challenger Middle School has 800 students. Every wednesday, 12% of the students stay after school for Chess Club. How many students attend Chess Club on Wednesdays?	58) Find the x-intercept, the y-intercept, and the rate of change (slope). $9x + 4y = 32$
55) What is the volume of a cylinder with a height of 6 inches and radius of 3 inches. Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.	59) Write 4 symbolic rules in different forms for a line with a y-intercept of -2 and a rate of change of -6.
56) Solve for the variable. $3(w + 7) = 2(w + 9)$	60) Find the intersection of the points by graphing. $y = x + 8$ $\qquad$ $y = -3x + 5$
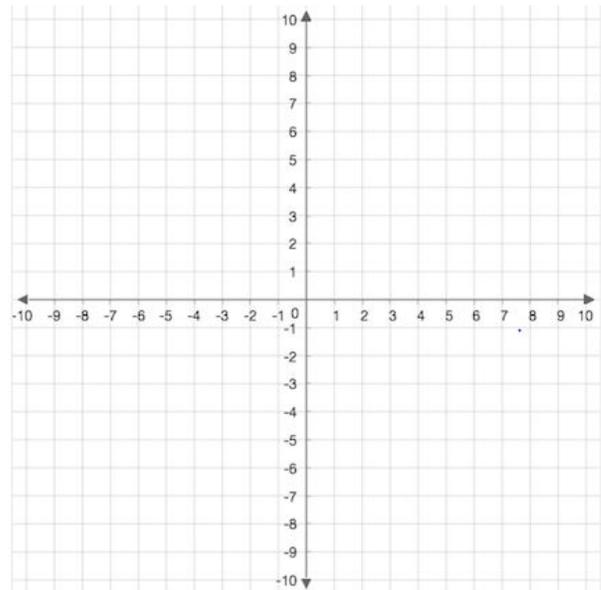
57) Solve the inequality and graph the solution on a number line.

$$2y - 5 < 7$$

61) Joselyn saves $20 per week for n weeks. She saves up $240. Write an equation to express how many weeks it took her to save.

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

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62) What expression is represented by the algebra tiles? 	66) What is the surface area of a cylinder that has a radius of the base of 25 mm and a height of 52 mm? Write your answer in exact (in terms of pi) and as an estimate (as a decimal) to the nearest hundredth.
63) Combine like terms. $$28x + 14 + 4x + 16$$	67) Solve for the variable. $$72 = 5(12 - f)$$
64) Write an inequality for the given graph. 	68) Solve the inequality and graph the solution on a number line. $$3x + 1 > 4x - 2$$
65) Evaluate the expression. $$2^3\left[\frac{1}{4} + 4(36 \div 12)\right]$$	69) Find the area of the shape. 11 cm 8 cm 7 cm
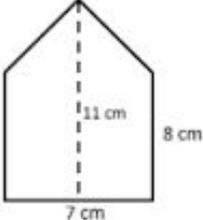
Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

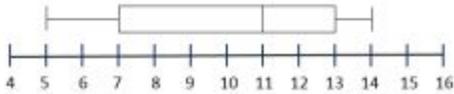**70)** Find the volume. Don't forget your label.

$9\frac{1}{3}$ in

2 in

$3\frac{1}{2}$ in

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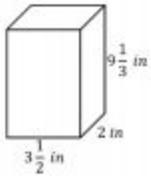
74) Find the area. Don't forget your label.

9 cm

3 cm

12 cm

15 cm

3 cm

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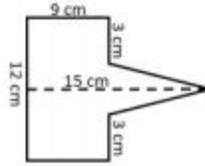
71) Using the box-and-whisker plot, to find the following:

4 5 6 7 8 9 10 11 12 13 14 15 16

Minimum: _____   Maximum: _____

Lower Quartile: _____   Upper Quartile: _____

Median: _____

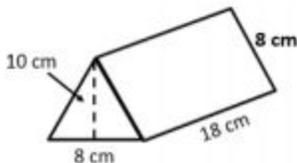**75)** Evaluate when x = 12.

$$8^3 + 5x$$

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72) Andrea's math test scores were 76, 88, 82, 94, and 88. Find the mean, median, and range.

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76) Find the intersection point by using substitution or elimination.

3k + n = 1   3k + n = 5

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73) Find the surface area. Don't forget your label.

8 cm

10 cm

18 cm

8 cm

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77) Find the x-intercept, the y-intercept, and the rate of change (slope).
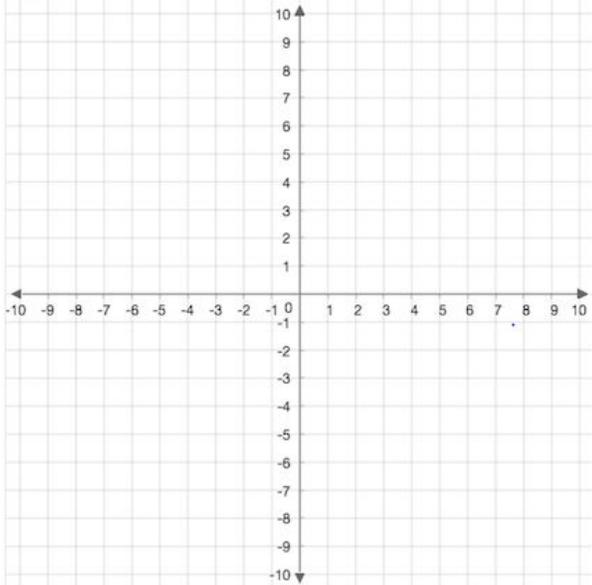
-8x + 14y = 56

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.
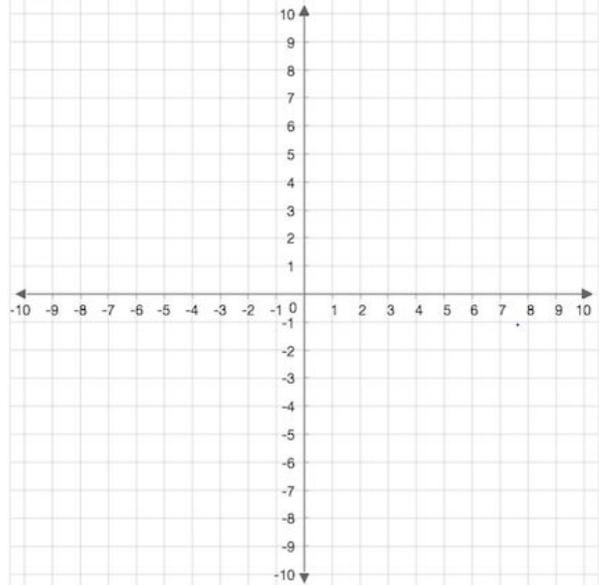
78) Graph the following equation. Do not make a table or use a calculator.
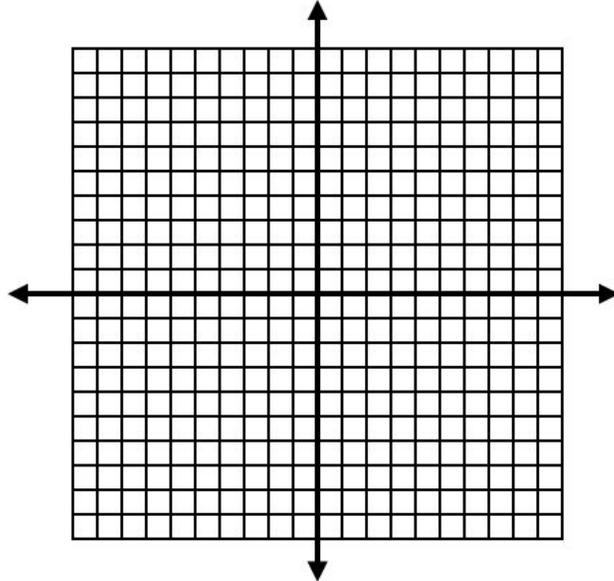
$$y = -\tfrac{3}{5}x - 2$$

81) Graph the following equation. Do not make a table or use a calculator.

$$2x + 4y = 32$$

79) Make a table and graph for the following symbolic rule. $y = -2x + 10$

| X	y

80) Convert point-slope form into slope-intercept form.

$$y = -5(x - 2) + 3$$

82) Set up a proportion and solve.
Charles can type 675 words in 9 minutes. How many words can he type in 13 minutes?

Complete without using a calculator and show all your work. If you use separate piece paper, be sure to label and attach it to your packet.

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83) Solve for the variable.

$$4 + \frac{1}{2}q = 10 + q$$

87) Jonathan places a star on a coordinate plane at (-2, -7). He wants to place another star across the y-axis, 5 points away. Where will Jonathan place the other star?

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84) Compare using >, <, or =.

7.3 _____ 3.9

- 3 _____ - 1

88) A dog rolls over 25 times in 2 minutes. How many times can the dog roll over in 6 minutes?

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85) Compare using >, <, or =.

$$\frac{1}{9} \underline{} - 4$$

- 0.43 _____ - 2.3

89) Find the surface area of the cube. Don't forget your labels.

12 cm

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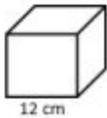
86) Find the area. Don't forget your label.

2 in

9 in

2 in

11 in
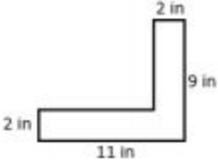
90) What is the value of $6x^2 + 17$ when x = 8?

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91) Find the area. Don't forget your labels.

7 cm

4 cm   4 cm

22 cm

8 cm

18 cm