

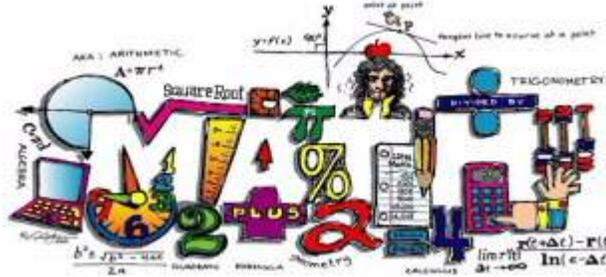
Name \_\_\_\_\_

Period \_\_\_\_\_

## 8th Grade Pre-Algebra Incoming Assignment

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### Bak MSOA Summer Required Mathematics Assignment Directions



Each student shall print and complete ONE Math packet during the summer, based on the class in which he or she will be enrolled this August.

Please select the appropriate packet from the following:

6<sup>th</sup> grade (same for Regular and Advanced)

7<sup>th</sup> grade Regular

7<sup>th</sup> grade Advanced

8<sup>th</sup> grade Pre-Algebra

Algebra 1 Honors

Geometry Honors

**\*On pages #1-11, complete the ODD problems, only, on each page.**

**\*On pages #12-15, complete ALL of the problems**

Show all appropriate work and circle your answers.

The Packet will not be collected on the first day of school.

This Assignment will be a portion of your first marking period Homework grade.

*Consider these helpful websites during the Summer and the School Year!*

*ixl.com, khanacademy.org, tenmarks.com, learnzillion.com*

**WE LOOK FORWARD TO SEEING YOU IN AUGUST. 😊**



11. Susie divided a 9-pound bag of apples into 5 equal piles. How many pounds of apples are in each pile?

- A  $\frac{1}{5}$  lb                      C  $1\frac{4}{5}$  lb  
B  $\frac{5}{9}$  lb                      D  $1\frac{5}{4}$  lb

12. Stephen's glass holds 450 milliliters of milk. Farrah's glass holds  $\frac{2}{5}$  as much milk. How much milk does Farrah's glass hold?

- A 90 mL                      C 225 mL  
B 180 mL                     D 360 mL

13. Which of the following expressions is equivalent to the expression below?

$$\frac{4}{7} \times \frac{5}{9}$$

- A  $\frac{5}{9} \div \frac{4}{7}$                       C  $\frac{4}{9} \div \frac{5}{7}$   
B  $\frac{4}{7} \div \frac{5}{9}$                      D  $\frac{4}{7} \div \frac{9}{5}$

14. Leah cut a  $7\frac{1}{2}$ -inch piece of ribbon into pieces that are each  $\frac{3}{4}$  of an inch long. How many pieces of ribbon did she cut?

- A 6 pieces                      C 10 pieces  
B 9 pieces                      D 15 pieces

15. Jonas is making a trail mix recipe that calls for  $3\frac{1}{2}$  cups of nuts and  $1\frac{1}{2}$  cups of raisins. Jonas mixes the nuts and raisins together. He will then divide the mixture into plastic bags containing  $\frac{1}{4}$  cup of trail mix in each bag. How many plastic bags does Jonas need?

- A 1                              C 20  
B 5                              D 50

16. Serena has 6,783 seeds to plant in her vegetable garden. She will plant 119 seeds per row. How many rows of vegetables will she have?

- A 42                              C 69  
B 57                              D 73

17. Jinwon hit a golf ball 145.7 yards. Kayla hit a golf ball 122.95 yards. How much farther did Jinwon hit a golf ball?

- A 22.75 yd                     C 80.12 yd  
B 30.25 yd                     D 108.36 yd

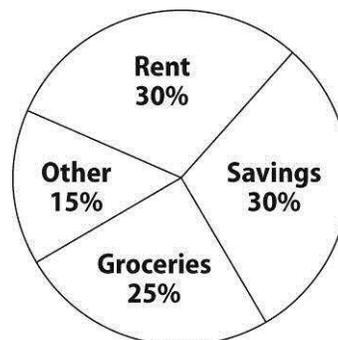
18. Gabriel drives 80 kilometers in one hour. If he drives at the same speed, how many kilometers can he drive in 3.75 hours?

- A 24.75 km                     C 80.75 km  
B 30 km                         D 300 km

19. How many 0.4-liter glasses of water are contained in a 5.2-liter pitcher?

- A 1.3 glasses                   C 13.4 glasses  
B 13 glasses                   D 52 glasses

20. Alissa's budget is shown in the circle graph below. Her total monthly budget is \$1,500. How much does Alissa spend on rent?



- A \$250                         C \$450  
B \$300                         D \$500

21. In Evan's math class, there are 17 boys and 21 girls. Which of the following is the ratio of boys to girls in the class?

- A  $\frac{17}{38}$                       C  $\frac{17}{21}$   
B  $\frac{21}{38}$                       D  $\frac{21}{17}$

22. Sara bought a 16-ounce jar of strawberry jam for \$3.20. What is the unit price?

- A \$0.02/oz                      C \$0.20/oz  
B \$0.50/oz                      D \$5.00/oz

23. Zach is making a recipe that requires 1 cup of vinegar and 3 cups of water. Which of the following combinations shows the same ratio of vinegar to water?

- A 2 cups of vinegar to 3 cups of water  
B 2 cups of vinegar to 6 cups of water  
C 3 cups of vinegar to 1 cup of water  
D 3 cups of vinegar to 6 cups of water

24. Liam bought 8 quarts of juice at the grocery. How many gallons of juice did he buy?

- A 1 gal                      C 3 gal  
B 2 gal                      D 4 gal

25. Delia measured her bathtub to be 2 meters long. Which of these is an equivalent measurement?

- A 0.4 mi                      C 8.2 ft  
B 3.5 yd                      D 78.7 in.

26. Nora bikes 30 miles per hour. Jiro bikes 45 miles per hour. Nora and Jiro each bike for 5 hours. How many more miles does Jiro bike?

- A 15 mi                      C 150 mi  
B 75 mi                      D 225 mi

27. The table below shows the number of books on shelves at a library. Which of the following represents the number of books?

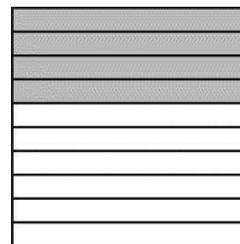
<b>Books</b>	42	63	105	147
<b>Shelves</b>	2	3	5	7

- A shelves  $\times$  3  
B shelves  $\times$  21  
C shelves + 28  
D shelves + 42

28. On a certain map, 1.25 inches represents 20 miles. Longwood and Milltown are 5 inches apart on the map. What is the actual distance between Longwood and Milltown?

- A 20 mi                      C 80 mi  
B 25 mi                      D 100 mi

29. What percent of the rectangle below is shaded?



- A 20%                      C 40%  
B 30%                      D 80%

30. What is the value of the power below?

$$(-4)^3$$

- A 12                      C -64  
B -16                      D 81

31. What are all the factors of 18?

- A 1, 2, 3, 6
- B 2, 3, 6, 9
- C 1, 2, 3, 6, 9
- D 1, 2, 3, 6, 9, 18

32. What is the value of the expression below?

$$205 - (7 - 2)^3 \div 5$$

- A 16
- B 36
- C 40
- D 180

33. Which of the following expressions is equivalent to the expression below?

$$2(7x + 3 - x)$$

- A  $12x + 6$
- B  $14x + 6$
- C  $17x - 2$
- D  $11x + 3$

34. Which is a solution of the equation below?

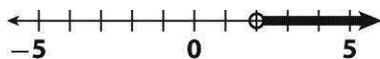
$$m - 9 = 4$$

- A  $m = -5$
- B  $m = -13$
- C  $m = 5$
- D  $m = 13$

35. A  $60^\circ$  angle is complementary to an angle that measures  $x^\circ$ . Which of the following equations represents this situation?

- A  $60 + x = 90$
- B  $60 = x + 90$
- C  $60 + x = 180$
- D  $60 = x + 180$

36. Which inequality is shown on the number line below?



- A  $p < 2$
- B  $p \leq 2$
- C  $p > 2$
- D  $p \geq 2$

37. Write an algebraic expression for the phrase below.

12 less than twice a number  $n$

- A  $12 - n - n$
- B  $2n - 12$
- C  $6 - 2n$
- D  $12n - 2$

38. Evaluate the expression below for  $x = -4$ .

$$6(x + 15)$$

- A 5
- B -5
- C -66
- D 66

39. Combine like terms to simplify the expression below.

$$14x - (2x - y) - y$$

- A  $12x$
- B  $14x - y$
- C  $12x - y$
- D  $14x$

40. A high-school band has  $d$  drummers and 10 violinists. There are 2 more violinists than drummers. Which of the following equations represents the situation?

- A  $d = 10 + 2$
- B  $d = 10 - 2$
- C  $d = 2 - 10$
- D  $d = 2 \times 10$

41. A student bought a book for \$7.50 and a pen. The total cost was \$9.50. Which of the following equations can be used to find the cost of the pen?

- A  $p = 7.5b$
- B  $p = 9.5b$
- C  $9.50 + p = 7.50$
- D  $7.50 + p = 9.50$



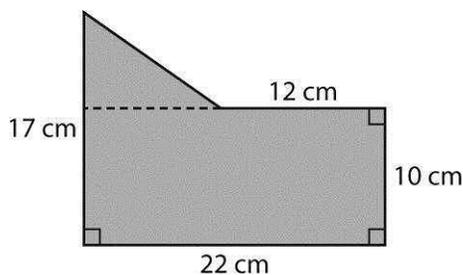
53. A triangle has an area of 221.16 square inches. The height of the triangle is 29.1 inches. What is the length of the base of the triangle?

- A 7.6 in.                      C 30.4 in.  
 B 15.2 in.                      D 60.8 in.

54. A lawn in the shape of a trapezoid has an area of 1,833 square meters. The length of one base is 52 meters, and the length of the other base is 42 meters. What is the height of the trapezoid?

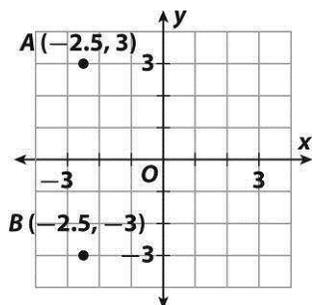
- A 35.25 m                      C 43.6 m  
 B 39 m                          D 94 m

55. What is the area of the polygon shown below?



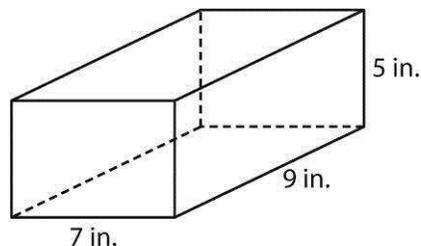
- A  $112 \text{ cm}^2$                       C  $160 \text{ cm}^2$   
 B  $136 \text{ cm}^2$                       D  $255 \text{ cm}^2$

56. What is the distance between points  $A$  and  $B$  on the grid?



- A 3 units                          C 6 units  
 B 4.5 units                      D 6.5 units

57. Charlene is wrapping the box below. How much wrapping paper will she need?

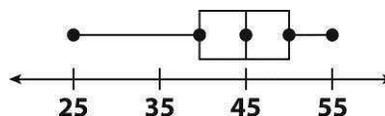


- A  $90 \text{ in}^2$                       C  $178 \text{ in}^2$   
 B  $153 \text{ in}^2$                       D  $286 \text{ in}^2$

58. A swimming pool in the shape of a rectangular prism is 30 feet long,  $15\frac{1}{2}$  feet wide, and 6 feet deep. How much water could the swimming pool hold?

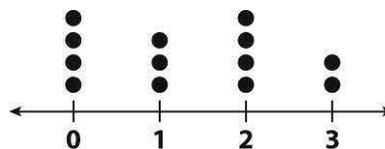
- A  $465 \text{ ft}^3$                       C  $1,860 \text{ ft}^3$   
 B  $930 \text{ ft}^3$                       D  $2,790 \text{ ft}^3$

59. What is the median of the data represented in the box plot below?



- A 25                                  C 45  
 B 35                                  D 55

60. What is the range of the data represented in the dot plot below?

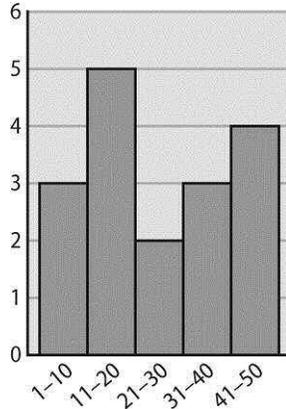


- A 0                                      C 2  
 B 1                                      D 3

61. Sandra worked 6.2 hours on Wednesday, 5.5 hours on Thursday, and 3.5 hours on Friday. Which of the following is closest to the mean number of hours she worked over the three-day period?

- A 3 h                                  C 5 h  
 B 4 h                                  D 6 h

62. The histogram below shows the number of hours per month students in Mr. Carter's class watch television. How many students watch television between 11 and 20 hours per month?



- A 2  
B 4  
C 5  
D 10
63. For 10 days in a row, Fiona and Gary timed how long they took to brush their teeth. Find the mean absolute deviation of each data set. Which person showed less variability in their teeth-brushing time?

Fiona's Time (seconds)
90, 85, 93, 97, 88, 91, 105, 98, 97, 96, 99, 98

Gary's Time (seconds)
75, 67, 115, 87, 46, 94, 65, 49, 87, 93, 55, 67

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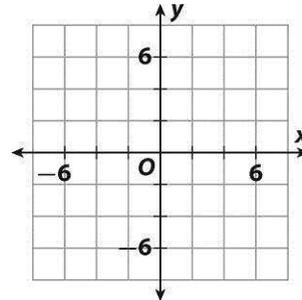


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64. Toni is designing a rug using a coordinate plane. She uses polygon  $ABCD$  with vertices  $A(6, 2)$ ,  $B(6, -2)$ ,  $C(-2, -2)$ , and  $D(-2, 2)$ . Each unit on the grid represents two feet. Plot the polygon on the grid below and find the area of the actual rug.



65. Ava's dog weighs 56 kilograms. Marty's dog weighs  $\frac{7}{8}$  as much. How much does Marty's dog weigh?

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66. Hayley cut a  $10\frac{2}{3}$ -foot rope into pieces that are each  $\frac{8}{9}$  of a foot long. How many pieces of rope did she cut?

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67. A caterpillar crawls 25 inches in one minute. How far can it crawl in 4.5 minutes?

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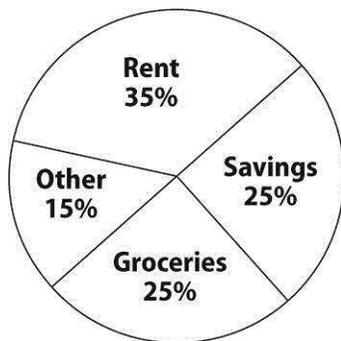
68. Jungwon has \$41.25. Notepads cost \$3.75 each. How many notepads can Jungwon buy?

\_\_\_\_\_

69. Noah bought 5 pounds of onions at \$2 per pound, a bag of salad greens for \$4, and 2 boxes of cereal for \$3 each. How much money did he spend?

\_\_\_\_\_

70. Oliver's total monthly budget is shown in the circle graph below.



Oliver's monthly budget is \$2,500. How much money does he save each month?

\_\_\_\_\_

71. Sara bought a 24-ounce can of tomato sauce for \$8.40. What is the unit price per ounce?

\_\_\_\_\_

72. Conrad bought 2 gallons of bottled water at the supermarket. How many cups of water did he buy?

\_\_\_\_\_

73. The table below shows the fees David charges for yard work.

Hours	2	4	6
Fee (\$)	70	140	210

How much money does David charge for yard work that takes 4.5 hours?

\_\_\_\_\_

74. A falcon can fly at a speed of 87 kilometers per hour. A goose can fly at a speed of 78 kilometers per hour. Suppose a falcon and a goose each fly for 6 hours. How much farther will the falcon fly?

\_\_\_\_\_

75. On a city map, 2.5 inches represents 5 miles. The library and the bank are 3 inches apart on the map. What is the actual distance between the library and the bank?

\_\_\_\_\_

76. What is the value of the expression below?

$$(7)^3$$

\_\_\_\_\_

77. Use the order of operations to simplify the expression below.

$$975 \div 3 - (12 - 9)^3$$

\_\_\_\_\_

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78. Evaluate the expression below for  $x = 15$ .

$$5(x + 7)$$

\_\_\_\_\_

79. Last year, the tree in Pedro's front yard was 5.6 feet tall. This year, the tree is 2 feet less than the height of Pedro's house. Pedro's house is 17 feet tall. How tall is the tree?

\_\_\_\_\_

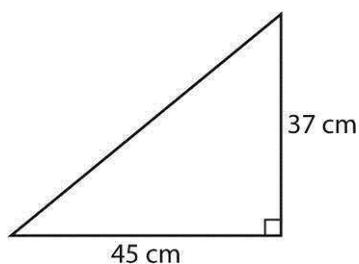
80. A parallelogram has a base of 45 meters and a height of 11 meters. What is the area of the parallelogram?

\_\_\_\_\_

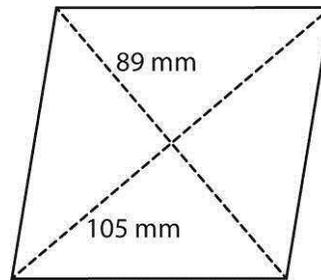
81. A rectangular prism has a volume of 711.68 cubic inches. The prism is 4 inches long and 12.8 inches wide. What is the height of the prism?

\_\_\_\_\_

82. What is the area of the triangle shown below?



83. What is the area of the rhombus shown below?



84. A triangle has an area of 227.04 square inches. The length of the base of the triangle is 47.3 inches. What is the height of the triangle?

\_\_\_\_\_

85. A field in the shape of a trapezoid has an area of 13,687.5 square yards. The length of one base is 150 yards, and the length of the other base is 215 yards. What is the height of the trapezoid?

\_\_\_\_\_

86. Malorie wants to tip her waiter 15%. Write an expression to show how much she should leave if  $t$  is the total bill?

\_\_\_\_\_

87. Find the quotient of  $-18 \div \left(-\frac{1}{6}\right)$ .

\_\_\_\_\_

88. Name the decimal is equivalent to  $\frac{7}{20}$ .

\_\_\_\_\_

89. Jen makes bead bracelets that are 18 inches long. She has an 86-inch length of beaded string. How many necklaces can she make?

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90. The ground temperature at ABC airport is  $5^{\circ}\text{F}$ . For every 500 feet gained in altitude, the temperature outside the plane drops  $1.6^{\circ}\text{F}$ . At an altitude of 3,000 feet, what is the likely outside temperature?

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91. Three students simplified the expression:

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

Their answers are below.

Amber:  $-4x + 7y$

Butch:  $4x + 7y$

Carl:  $8x + 7y$

Tell who is correct. Explain the error the other students made.

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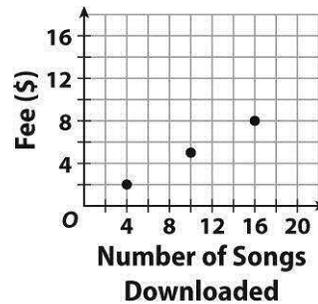
92. Terry skated 2 miles in  $\frac{1}{2}$  hour. What is the unit rate that she skates?

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93. Simplify  $\frac{1}{2}(4a + b) - \frac{1}{4}(4a + b)$ .

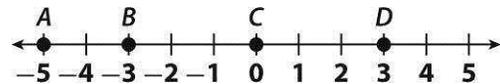
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94. The graph below shows the relationship between fees charged for downloading songs from a website and the number of songs downloaded. Write an equation to represent the relationship.




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95. Four students put their game scores on the number line below. Which pair of students have a combined score of 0?




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96. The Philippine Trench in the Pacific Ocean is 10.05 km deep. The Brazil Basin in the Atlantic Ocean is 6.12 km deep. To the nearest hundredth of a kilometer, how many kilometers deeper is the Philippine Trench?

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97. There are 3,280.84 feet in a kilometer. There are 5,280 feet in a mile. To the nearest hundredth, how many kilometers are in a mile?

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Show work on notebook paper.

Write your final answers on this paper.

### Simplifying Integers without a Calculator

$(+24) - (-83) =$	$(-81) \div (+27) =$	$(+78) + (+93) =$
$(-67) + (+51) =$	$(+40) + (-85) =$	$(-65) \div (+13) =$
$(+90) \div (+15) =$	$(-52) - (+74) =$	$(-10) \times (+87) =$
$(-11) \times (-90) =$	$(+69) \times (+14) =$	$(-12) - (-58) =$
$(+52) + (-18) =$	$(-98) + (+99) =$	$(+23) + (+76) =$
$(-84) \div (+21) =$	$(+40) \div (-10) =$	$(-60) \div (+10) =$
$(+13) \times (-62) =$	$(-16) - (-19) =$	$(+85) - (-42) =$
$(+78) + (-78) =$	$(+27) \times (-12) =$	$(-19) + (-19) =$
$(-53) - (-14) =$	$(-66) \div (+22) =$	$(+23) \times (-12) =$

# Solve using the Order of Operations without a calculator

Show all work on notebook paper. Do not skip steps. Put your final answers on this paper.

a.  $(8^2 + 5^2) + 4$

b.  $(4 \times 5^2 + 4)$

s.  $(5^2 - 9) - (6^2 \times 7^2 - 6)$

c.  $(7 - 2^2) \times (9^2 + 6^2 + 3)$

d.  $(3^2 + 5^2) + 5$

u.  $2^2 - 7 + (6 - 7 \times 3)$

e.  $(2 - 7^2) - 3$

f.  $(7 - 9 \div 3)$

w.  $2^2 \times (6 \times 3 + 8)$

g.  $3^2 \times (6^2 \times 8 - 1)$

h.  $(5 - 3 \times 4^2 + 7)$

y.  $(7^2 + 5 \times 3) + 7$

i.  $(7^2 \times 1) \times 7^2 - 4$

j.  $1 - 2 + (2 + 1^2 - 4)$

aa.  $(9^2 - 5^2) \div 7 + 8$

k.  $2^2 - (1 + 1) - 3 - 5$

l.  $(8 - 4 \div 1)$

ac.  $(4^2 - 5 + 8) + 3 \times 6$

m.  $(8^2 \div 2^2 - 8)$

n.  $(9^2 - 6) \times 3$

z.  $(2^2 - 6 - 4)$

o.  $(2 + 1^2 \times 5)$

p.  $4 - (7 \times 9^2 + 8)$

ab.  $3 + (8 + 1 \times 1 \times 7)$

# Operations with Fractions:

## Mixed Review

Solve each problem without a calculator.

Show work on notebook paper.

Write your final answers on this paper.

$$\frac{5}{6} + \frac{7}{8} =$$

$$\frac{7}{5} - \frac{11}{9} =$$

$$\frac{38}{2} \times \frac{27}{81} =$$

$$\frac{48}{16} \div \frac{18}{26} =$$

$$\frac{8}{9} + \frac{13}{7} =$$

$$\frac{8}{13} - \frac{4}{11} =$$

$$6\frac{8}{9} \times \frac{36}{31} =$$

$$\frac{84}{35} \div 28 =$$

$$2\frac{6}{7} + 10 =$$

$$\frac{11}{10} - \frac{5}{8} =$$

$$\frac{29}{28} \times \frac{16}{58} =$$

$$\frac{96}{98} \div \frac{18}{49} =$$

$$\frac{12}{26} + \frac{8}{13} =$$

$$\frac{7}{6} - \frac{1}{15} =$$

$$81 \times \frac{7}{18} =$$

$$\frac{5}{12} + \frac{4}{5} =$$

$$\frac{9}{14} - \frac{3}{7} =$$

$$\frac{16}{22} \times \frac{33}{28} =$$

## Solving One-Step Equations without a calculator

Use Inverse Operations to solve each problem. Show all work on notebook paper.  
Do not skip steps. Put your final answers on this paper.

1.  $22 = -11k$

2.  $-13m = -377$

3.  $-19 = b - 6$

4.  $k - 7 = -1$

5.  $-8 = p - 13$

6.  $-8 = -16 + n$

7.  $-40 = -5p$

8.  $418 = -22a$

9.  $-9 + x = -26$

10.  $\frac{a}{29} = 5$

11.  $-2 = \frac{m}{16}$

12.  $29 + n = 13$

13.  $x - 11 = 16$

14.  $-10 = x - 21$

15.  $k + 1 = -27$

## Ordering Unlike Fractions from LEAST TO GREATEST

\*\*\*NO CALCULATORS!!!\*\*\*

3.  $\frac{3}{8}, \frac{4}{8}, \frac{5}{6}, \frac{2}{8} =$

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4.  $\frac{9}{18}, \frac{2}{9}, \frac{2}{3}, \frac{4}{9} =$

---

5.  $\frac{4}{5}, \frac{2}{5}, \frac{8}{10}, \frac{2}{10} =$

---

6.  $\frac{2}{6}, \frac{1}{9}, \frac{5}{6}, \frac{7}{9} =$

---

7.  $\frac{2}{6}, \frac{4}{6}, \frac{4}{12}, \frac{4}{18}, \frac{7}{12} =$

---

8.  $\frac{2}{6}, \frac{3}{18}, \frac{5}{12}, \frac{5}{6} =$

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9.  $\frac{1}{3}, \frac{9}{15}, \frac{2}{5}, \frac{7}{15}, \frac{8}{15} =$

---

10.  $\frac{6}{9}, \frac{4}{9}, \frac{3}{9}, \frac{1}{6} =$

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11.  $\frac{2}{3}, \frac{3}{7}, \frac{5}{7} =$

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