Regina

Pre-Algebra

Summer Math Review

In the following pages, you will find review materials that will prepare you for next year's math course. Please take the exercises seriously as this will allow us to hit the ground running in the fall. These skills have already been taught and are necessary for success.

Kahn Academy, YouTube, and math.com are very useful resources!

The review materials are separated into sections. Doing one section a week is only a suggestion. You will have the most benefit from this material if you work on it throughout the summer and do a final review of your work a week or two before school starts. This packet is due the first day of school.

Your completion of the packet will be recorded. It is not okay to skip sections where you are weak. Those are the skills you need to strengthen over the summer. You will be assessed on these skills during the first two weeks of school. Exact assessment dates will be announced by your teacher.

Pre-Algebra Summer Review Packet

Welcome to Pre-Algebra!

This packet is designed to strengthen your skills you learned so you are ready to apply them in Pre-Algebra. It is important that you are ready with these skills as they are necessary for success in Pre-Algebra.

The materials are separated into sections so you can work a little at a time if you wish. This will help your math skills stay sharp all summer and you will be ready for Pre-Algebra.

Show your work, and please do not use a calculator! Bring this completed packet with you the first day of class.

The sections are as follows:

General Review: This section will include place value, addition, subtraction, multiplication, division, simplest form, percent, word problems, mean, and computation.

Adding and Subtracting Integers: This section will include positive and negative numbers.

Variable Practice: This section will include solving one-step equations, evaluating expressions, distributive property, and combining like terms.

Fraction Practice: This section will include comparing, addition, subtraction, multiplication, and division.

Proportions: This section will include solving proportions, and word problems.

Graphing in the Coordinate Plane: This section will include graphing points, and creating your own points.

Materials needed for Pre-Algebra:

--TI-30x Scientific Calculator
--Binder or notebook for note taking
--pencils

--Practice problems were modified from West Windsor-Plainsboro Middle School Pre Algebra Packet

General Review

Write the place-value position for each digit in 48.092.

1. the 9 2. the 8 3. the 4 4. the 2

Replace each ◯ with <, >, or = to make a true sentence.

5. 5,048 ◯ 5,084 6. 7.641 ◯ 7.6410

Add, subtract, multiply, or divide.

7. $\begin{array}{r} 2{,}068 \\ +\ 487 \\ \hline \end{array}$ 8. $\begin{array}{r} 40{,}236 \\ +\ 14{,}890 \\ \hline \end{array}$ 9. $\begin{array}{r} 584 \\ -\ 391 \\ \hline \end{array}$ 10. $\begin{array}{r} 6{,}000 \\ -\ 3{,}109 \\ \hline \end{array}$

11. 5.8 + 10.3 =

12. 4.39 + 21.6 + 0.934 =

13. 4.10 − 2.684 =

14. \$147.04 − \$76.38 =

15. $\begin{array}{r} 807 \\ \times\ 6 \\ \hline \end{array}$ 16. $\begin{array}{r} 57 \\ \times\ 63 \\ \hline \end{array}$ 17. $\begin{array}{r} 9.07 \\ \times\ 12 \\ \hline \end{array}$ 18. $\begin{array}{r} 12.015 \\ \times\ 0.14 \\ \hline \end{array}$

19. $4\overline{)824}$ 20. $38\overline{)342}$ 21. $0.8\overline{)50.4}$ 22. $0.56\overline{)1.148}$

Write each fraction in simplest form.

27. $\frac{10}{16} =$ 28. $\frac{15}{27} =$ 29. $\frac{12}{40} =$ 30. $\frac{28}{60} =$

Replace each ◯ with <, >, or = to make a true sentence.

31. $\frac{7}{9} \bigcirc \frac{5}{6}$ 32. $\frac{10}{12} \bigcirc \frac{5}{6}$

General Review

Add, subtract, multiply, or divide.
Write each result in simplest form.

33. $\frac{4}{11} + \frac{3}{11} =$

34. $\frac{7}{12} + \frac{1}{6} =$

35. $2\frac{8}{9} + 8\frac{2}{3} =$

36. $\frac{8}{17} - \frac{7}{17} =$

37. $\frac{2}{3} - \frac{7}{15} =$

38. $2\frac{5}{8} - 1\frac{5}{6} =$

39. $\frac{4}{5} \times \frac{1}{3} =$

40. $\frac{8}{15} \times \frac{3}{4} =$

41. $1\frac{7}{8} \times 3\frac{3}{5} =$

42. $\frac{1}{8} \div \frac{1}{3} =$

43. $\frac{3}{8} \div 6 =$

44. $5\frac{5}{8} \div 1\frac{7}{8} =$

Write each percent as a decimal and each decimal as a percent.

45. 6% =

46. 0.195 =

Find the percent of each number.

47. 125% of 10

48. 6.8% of 500

Complete the following.

49. 420 min = ☐ h

50. 5 ft = ☐ in.

Solve.

51. A train traveled 671 miles one day and 869 miles the next. How many miles is this altogether?

52. A 28-story building has 32 rooms on each floor. How many rooms are in the building?

53. There are 6 buses and 282 passengers. How many are on a bus if each one carries the same number of passengers?

54. A television set is on sale at $43.50 off the original price. Find the sale price if the original price is $350.

55. A shirt is purchased for $10.39. How much change is given from $15?

56. The admission to a movie is $3.50. What amount is collected for 136 admissions?

Find the mean for the following groups of numbers.

57. 63, 67, 60, 78, 74, 72

58. 41, 37, 25, 36, 31

General Review

Compute. Use order of operations. Show all work!

1. $36 - 4 + \sqrt{25}$
2. $8(3+7) - 5$
3. $7(6) - 40 \div 5$
4. $15 + 18 \div 3^2 - 6$
5. $\sqrt{36} \div (15 - 9)\,4$
6. $(8-3)^2 \cdot (14-8)$
7. $\dfrac{(12-5) \bullet 6}{7-4}$
8. $\dfrac{80 \div (6-2)}{35 \div 7}$
9. $2^4 \div [5^2 - (13+7)]$
10. $40 - 2(15)$
11. $6(8-4) + 5$
12. $9(4) - 24 \div \sqrt{16}$
13. $15 - 2(3)$
14. $98 - (36 + 15)$
15. $(98 - 36) + 15$
16. $17 + 3(4+2)$
17. $38 - 5(3+4)$
18. $5(8+4) - |12|$
19. $7\,(1+9) - 44$
20. $(24-9) - (1+3)$
21. $(50+16) - (17-6)$
22. $\dfrac{8+7}{7-2}$
23. $\dfrac{40}{4(2)}$
24. $\dfrac{4(3)}{14-4}$
25. $\dfrac{6(8-3)}{2}$
26. $\dfrac{8}{2} + \sqrt{121}$
27. $\dfrac{9}{3} - 1$
28. $|-7| + \dfrac{18}{3(3)}$
29. $\dfrac{9(2)}{6} + 4$
30. $12 - \dfrac{8(5)}{4}$

Use grouping symbols to make each statement true.

31. $25 - 8 \cdot 3 = 51$
32. $9 + 4 \cdot 5 - 3 = 17$
33. $9 + 9 \div 3 \cdot 5 - 3 = 12$
34. $6 \cdot 5 - 5^2 + 2 = 3$

Write as an algebraic expression.

1. 7 less than 4 times a number _____
2. 11 more than half a number _____
3. 6 less than twice w _____
4. the sum of triple z and half of x _____
5. 5 more than the product of 14 and y _____
6. ½ the difference of a number and 15 _____
7. double the sum of x and 5 _____
8. 4 less than the quotient of x and -5 _____

Adding and Subtracting Integers

Adding integers with the same sign, add their absolute values and give the result the same sign as the integers.

Example: find the sum of -3 + (-4); -3 + (-4) = -7

Adding integers with different signs, subtract out the 1 + (-1) pairs and the result is what is left.

Example: find the sum of -5 + 4; there are 4 pairs of 1 + (-1) which add to zero. There is a -1 that didn't have a 1 to add to it so the result is -1. -5 + 4 = -1

Example: find the sum of -8 and 11; there are 8 pairs of 1 + (-1) which add to zero. There are 3 ones left so the result is 3. -8 + 11 = 3

Practice: Find each sum.

1. 6 + (-3) =
2. -4 + (-4) =
3. 20 + (-8) =
4. -18 + (-5) =
5. -14 + 25 =
6. -12 + (-10) =
7. -8 + 5 =
8. 9 + 11 =
9. 43 + (-11) =
10. -30 + 12 =

Subtracting integers: To subtract an integer, add its additive inverse (opposite).

Examples:

1. -4 – 6 is the same as -4 + (-6). We changed the subtraction to adding the opposite of -6.

-4 + (-6) = -10

2. 8 – (-5) is the same as 8 + 5. We changed the subtraction to adding the opposite of -5.

8 – (-5) = 8 + 5 = 13

3. 6 – 10 is the same as 6 + (-10). We changed the subtraction to adding the opposite of 10.

6 – 10 = 6 + (-10) = -4

Practice. Make sure to show how you changed subtraction to adding the opposite.

1. 12 – (-8) =
2. -14 – 4 =
3. 24 – (-12) =
4. -6 – (-9) =
5. 17 – (-9) =
6. -13 – 17 =
7. -10 – (-6) =
8. 26 – 49 =
9. 8 – (-6) =
10. -9 – 7 =

Variable Practice

Solve each equation. Show algebra steps.

1. $z + 16 = 4$
2. $0 = m + 17$
3. $-3 = j + 5$
4. $h + 13 = 21$
5. $9 + g = -20$
6. $-7 + d = -26$
7. $a - 20 = -3$
8. $w - 18 = 7$
9. $r - 19 = 23$
10. $-9 = k - 11$
11. $-15 = n - 22$
12. $27 = x - 14$
13. $-8 + b = -5$
14. $t - 24 = 12$
15. $-28 + p = -3$

Practice: Evaluate each expression if x = 10, y = 5, and z = 1

1. $x + y - z =$
2. $\frac{x}{y} =$
3. $2x + 4z =$
4. $xy + z =$
5. $x(2 + z) =$
6. $\frac{x+y}{z} =$

Use the distributive property to write an equivalent expression.

1. 5(5 + c) _____

2. -8(y + 2) _____

3. (m + 1)9 _____

4. -3(2a + 5) _____

5. 4(y + 3z) _____

6. (2a + 3b)4 _____

Combine like terms.

7. 17c + 6c _____

8. 3y + 7x + 5y _____

9. 3a + 16 + 9a + 2a _____

10. 5m + 11n + 11m + 5n _____

11. 4(x + 5) + 8x + 7 _____

12. 36 – 72t + 4t _____

Multiplication and Division Equations

Solve each equation. Show algebra steps.

1. -6y = -84

2. $\frac{7}{8}t = 49$

3. 440 = 15a

4. -136 = -17k

5. 126 = -21p

6. 0.15c = 600

7. $\frac{d}{-9} = 11$

8. $\frac{p}{8} = 4\frac{1}{4}$

9. $22 = \frac{g}{-32}$

10. $-2.1 = \frac{r}{14}$

11. $-15 = \frac{w}{-12}$

12. $\frac{z}{-18} = 18$

Fraction Practice

Show all work.

1. Replace each ___?___ with $>$, $<$, or $=$.

a. $\frac{5}{9}$ ___?___ $\frac{5}{11}$

b. $\frac{47}{48}$ ___?___ $\frac{48}{49}$

c. $\frac{24}{25}$ ___?___ $\frac{8}{9}$

d. $\frac{14}{25}$ ___?___ $\frac{14}{27}$

2. Find each sum or difference. Write each answer in lowest terms.

a. $\frac{2}{3}-\frac{4}{9}$

b. $\frac{11}{12}-\frac{5}{8}$

c. $\frac{4}{15}+\frac{2}{3}$

d. $\frac{3}{8}+\frac{1}{6}$

e. $\frac{2}{3}-\frac{5}{11}$

3. Carl has a rock collection. Of the rocks, $\frac{3}{8}$ are quartz and $\frac{1}{3}$ are granite. What fraction of Carl's rocks are quartz or granite?

4. Find each sum or difference. Write each answer in lowest terms.

a. $3\frac{2}{3}+1\frac{5}{9}$

b. $6\frac{2}{3}-4\frac{2}{5}$

c. $6\frac{3}{4}+9\frac{5}{6}$

d. $6\frac{3}{4}-2\frac{1}{2}$

e $78\frac{1}{2}-24\frac{3}{4}$

f. $12\frac{1}{2}+8\frac{7}{10}$

5. Find each product. Write each answer in lowest terms.

a. $4 \cdot 2\frac{1}{6}$

b. $5 \cdot 2\frac{1}{4}$

c. $\frac{5}{8} \cdot \frac{2}{5}$

d. $2\frac{3}{5} \cdot 1\frac{3}{8}$

6. Find each quotient. Write each answer in lowest terms.

a. $6 \div \frac{5}{6}$

b. $3\frac{1}{4} \div 1\frac{3}{4}$

c. $9 \div \frac{3}{8}$

d. $2\frac{5}{6} \div \frac{1}{3}$

7. Sonya has 9 yd of wrapping paper. She cuts the paper into pieces that are $\frac{2}{3}$ yd long. How many pieces does she have?

8. A recipe for rice pudding calls for $3\frac{3}{4}$ c milk. How much milk would you need to triple the original recipe?

Proportions

Use equivalent ratios or cross-products to solve each proportion.

1. $\frac{2}{7} = \frac{24}{x}$

2. $\frac{4}{15} = \frac{x}{90}$

3. $\frac{x}{20} = \frac{154}{280}$

4. $\frac{x}{14} = \frac{10}{4}$

5. $\frac{x}{22} = \frac{20}{5}$

6. $\frac{x}{16.5} = \frac{84}{132}$

7. $\frac{40}{24} = \frac{x}{9}$

8. $\frac{63}{93} = \frac{x}{31}$

9. $\frac{x}{14} = \frac{11}{35}$

10. Four notebooks cost $4.40. How many notebooks can you buy for $6.60?

11. Two roses cost $3.50. How many roses can you buy for $17.50?

12. A roll of paper towels cost $1.90. How many rolls can you buy for $9.50?

13. Carl works 8 hours and earns $52. How many hours would he have to work to earn $130?

14. Use the table below that shows the prices of several fruits to answer the following questions.

Fruit	Price
Apples	4 for $3.00
Bananas	3 lb/$1.50
Cantaloupes	2 for $2.50
Cherries	2 lb/$2.40
Peaches	1 lb/$.90

a. How much would 5 pounds of bananas cost?

b. How much would 7 apples cost?

Graphing in the Coordinate Plane

When locating points on a coordinate plane, we use a pair of values called coordinates to tell us where to place the point. The coordinates are written this way: (x , y) where the x-value tells us how many spaces horizontally to travel away from the origin and the y-value tells us how many spaces vertically to travel away from the origin. The coordinates A(-3, 5) mean to go 3 spaces left of the origin and then 5 spaces up. Mark the point and call it A.

1. Graph the following points on the coordinate grid provided. Mark each point with the letter given.

A(-2, 3)

B(5, -7)

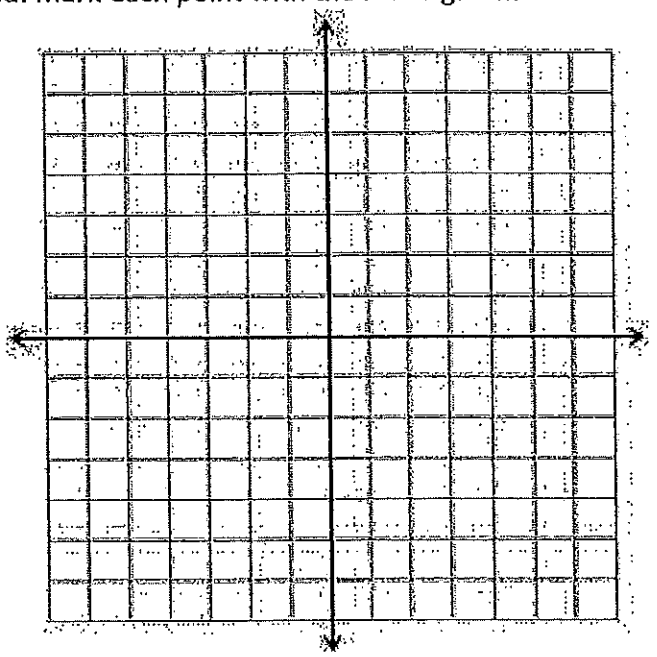
C(0, 4)

D(1, 6)

E(-4, -5)

F(-1, 0)

G(3, -3)



2. Use at least 6 points to mark points that form your initial when connected. Make sure you place points in all four sections (quadrants) of the graph. Name the points chosen like in question 1 and write the coordinates. Add more points below those listed if needed.

A(_____, _____)

B(_____, _____)

C(_____, _____)

D(_____, _____)

E(_____, _____)

F(_____, _____)