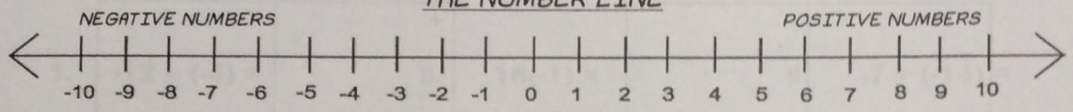
INTEGER CHEAT SHEET

Integers- A set of positive and negative whole numbers. They can be represented on a number line.

THE NUMBER LINE



Absolute Value- The distance a number is from zero on the number line. An absolute value is never negative. Examples: $|-5| = 5$ and $|5| = 5$

ADDING INTEGERS

SAME SIGN- Add and Keep the Sign!

Add the absolute value of the numbers and keep the same sign.

(positive) + (positive) = Positive

(+4) + (+5) = +9

(negative) + (negative) = Negative

(-4) + (-5) = -9

DIFFERENT SIGNS- Subtract and Keep the Sign of the Bigger Number!

Subtract the absolute value of the numbers and keep the sign of the bigger number.

(-4) + (+5) = +1
(+4) + (-5) = -1

SUBTRACTING INTEGERS

Do not subtract integers. You must change the signs:
"Add the Opposite"

KEEP- Keep the sign of the first number

CHANGE- Change the subtraction sign to addition

CHANGE- Change the sign of the second number to the opposite sign. If it is positive- change to negative. If it is negative- change to positive.

(+4) - (-4)

Keep change change
(+4) + (+4)

NOW USE THE RULES FOR ADDING:
SAME SIGN- Add absolute values and keep sign:

(+4) + (+4) = 8

MULTPLYING INTEGERS

SAME SIGNS- POSITIVE
Multiply the numbers. Answer will be positive.

(-5) × (-5) = +25

DIFFERENT SIGNS- NEGATIVE
Multiply the numbers. Answer will be negative

(+5) × (-5) = -25

DIVIDING INTEGERS

SAME SIGNS- POSITIVE
Divide the numbers. Answer will be positive.

(-5) ÷ (-5) = +1

DIFFERENT SIGNS- NEGATIVE
Divide the numbers. Answer will be negative

(+5) ÷ (-5) = -1

Integer Operations Review

Name: _____

For each problem you must add, subtract, multiply and divide the integers. No calculators and all answers must be written in simplest form, no improper fractions!

1. - 9, - 9

+	-
*	/

2. 8, -2

+	-
*	/

3. 40, -20

+	-
*	/

4. -5, 3

+	-
*	/

5. -16, -4

+	-
*	/

6. -35, 70

+	-
*	/

7. 32, -8

+	-
*	/

8. 100, -60

+	-
*	/

Name: _____ Date: _____

Review of all Operations on Integers

1. $5 + (-65) =$
2. $-23 + 8 =$
3. $-20 - 30 =$
4. $-2 \cdot (-18) =$
5. $-8 \div (-8) =$
6. $5 \cdot (-8) =$
7. $-12 - (-4) =$
8. $16(-1) =$
9. $-7 + (-14) =$
10. $42 + 16 =$
11. $-99 - 1 =$
12. $-99 + (-1) =$
13. $-88 - (-5) =$
14. $-32 \div 8 =$
15. $0 + (-62) =$
16. $0 - (-62) =$
17. $8 - 12 =$
18. $-10(2) =$
19. $5(-2)(-1) =$
20. $-10 - 2 =$
21. $16 - 30 =$
22. $0 - 112 =$
23. $-60 \div 12 =$
24. $19 \cdot 2 =$
25. $13 + (-11) =$
26. $-7 - (-2) =$
27. $7 - (-2) =$
28. $-4 + 5 =$
29. $-10 + 16 - 8 =$
30. $0 - 9 - 9 =$
31. $8(-12) =$
32. $8 - (-12) =$
33. $-1 + 100 - 99 =$
34. $14 - 4 =$
35. $-40 \div (-5) =$
36. $4 - 14 =$
37. $21 \cdot (-3) =$
38. $120 + (-10) =$
39. $0 - 6 + (-1) =$

Write and solve a problem for each of the following:

40. What is the sum of -16 and -48? _____
41. What is the product of 9 and -100? _____
42. What is the quotient of 14 divided by -7? _____
43. What is the difference between 17 and -6? _____
44. What is the quotient of 7 divided by 14? _____

Name_____ Period _____

Review All Four Operations

Solve each of the following and reduce your answers to lowest terms.

1. $\frac{2}{5}+\frac{7}{20}=$

2. $\frac{1}{8}+\frac{1}{2}=$

3. $\frac{2}{3}+\frac{3}{4}=$

4. $\frac{3}{4}+\frac{5}{6}=$

5. $5\frac{1}{2}+6\frac{1}{3}=$

6. $6\frac{2}{5}-3\frac{1}{2}=$

7. $10\frac{7}{12}-6=$

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

9. $7\frac{5}{6}-1\frac{3}{4}=$

10. $7\frac{1}{2}-3\frac{3}{4}=$

11. $\left(\frac{1}{3}\right)\left(\frac{3}{4}\right)=$

12. $\left(\frac{1}{2}\right)\left(-1\frac{1}{2}\right)=$

13. $\left(-1\frac{1}{4}\right)\left(-2\frac{6}{15}\right)=$

14. $\left(8\frac{1}{6}\right)\left(1\frac{5}{7}\right)=$

15. $\frac{1}{3}\div\frac{2}{5}=$

16. $\frac{8}{9}\div 3=$

17. $\left(-\frac{9}{10}\right)\div\left(-\frac{3}{4}\right)=$

18. $12\div\left(-2\frac{1}{4}\right)=$

19. $10\div 2\frac{2}{5}=$

20. $\left(-2\frac{1}{6}\right)\div\left(-1\frac{4}{9}\right)=$

Solve each of the following questions and be sure to show all work.

21. The length of a kangaroo's leap can be up to $6\frac{1}{2}$ times its height. If a kangaroo is $7\frac{1}{2}$ feet tall, how far can it jump?

22. Susan threw the javelin $76\frac{2}{3}$ meters for her first throw and $72\frac{3}{4}$ meters for her second throw. How much longer was her first throw than her second throw?

Name: _____ Date: _____

Multiplying Decimal Numbers

When multiplying decimal numbers:

1. It is not necessary to line up the decimal points
2. Ignore the decimal points and multiply as you would multiply whole numbers.
3. To place the decimal point in the answer, count the total number of digits to the right of the decimal point for both numbers being multiplied; these are called decimal places.

Example:

$$\begin{array}{r} 0.31 \\ \times\ 0.18 \\ \hline 248 \\ 310 \\ \hline 558 \end{array}$$

0.31 → 2 decimal places

0.18 → 2 decimal places

558 → answer should have 4 decimal places

$$\begin{array}{r} 0.31 \\ \times\ 0.18 \\ \hline 248 \\ 310 \\ \hline \cdot 0558 \end{array}$$

Count 4 digits from the left then place the decimal point.

So, the answer is **0.0558**

Why do we count the total number of decimal places and place the decimal point in the final answer accordingly?

Let's write the same decimal numbers in the above example as fractions then do the multiplication:

0.31 is written as $\frac{31}{100}$ and 0.18 is written as $\frac{18}{100}$

Multiply $\frac{31}{100} \cdot \frac{18}{100} = \frac{558}{10{,}000} = 0.0558$ → The same answer we got when we multiplied 0.31 by 0.18 in the above example

Solve.

1. $\begin{array}{r} 0.12 \\ \times\ 0.5 \\ \hline \end{array}$

2. $\begin{array}{r} 5.07 \\ \times\ 0.73 \\ \hline \end{array}$

3. $\begin{array}{r} 15.21 \\ \times\ 0.45 \\ \hline \end{array}$

4. $\begin{array}{r} 2.08 \\ \times\ 3 \\ \hline \end{array}$

5. $\begin{array}{r} 19.06 \\ \times\ 231 \\ \hline \end{array}$

6. $\begin{array}{r} 677 \\ \times\ 1.28 \\ \hline \end{array}$

7. $\begin{array}{r} 9.22 \\ \times\ .108 \\ \hline \end{array}$

8. $\begin{array}{r} 40.65 \\ \times\ 7.53 \\ \hline \end{array}$

Name: _____ Date: _____

Mixed Decimal Review

1) $(65.9)(2.21) =$

2) $(0.057) \cdot (0.12) =$

3) $56 - 1.24 =$

4) $0.002 + 98 =$

5) $(62.09)(8.4) =$

6)
$$\begin{array}{r} 400.3 \\ -\ 56.2 \\ \hline \end{array}$$

7) $163 - 75.14$

8) $74.9\overline{)352.03}$

Name: _____ Date: _____

Solve the following problems.

1. At the marketplace, 5 pounds of oranges are selling for $3.15.
   a. What is the unit price for oranges?

   b. To the nearest dollar, what is the cost of buying 10.5 pounds of oranges?

2. A recipe requires 0.5 stick of butter. Find the amount of butter needed for one quarter of the recipe by:
   a. Using division

   b. Using multiplication

3. You have one chocolate bar that you want to divide equally among 5 crying babies.
   a. Write and solve a problem to find the amount, as a decimal number, that each baby will get.

   b. What does your answer mean?

4. I borrowed $12.75 from Keysha. Later on I borrowed an additional $6.15.
   a. What is the amount of my debt?

   b. If my sister gives me $20 and I pay all my debt, how much money will I be left with?

5. How many groups of 15 cents are in $14.25?

6. How many feet are in 66.75 inches? Hint: the quotient will terminate after 4 decimal places.

7. I paid $39.90 to fill up my car with 10 gallons of gas. What is the unit price of gas? Hint: just move the decimal point.

8. Ethan is trying to draw one row of congruent squares on a 8.5 inch wide paper. If each square is 0.85 inch wide. How many squares will Ethan be able to fit in the row?

Name: _____ Date: _____

Solve the following problems.

1. The Hubba Bubba Bubble Gum Tape is 6 feet long. How many 2¼ inch pieces can the tape be cut into?

2. Maria needs ¾ of a cup of sugar for one serving of her recipe. How many cups of sugar will she need for 5 servings?

3. Chris has a $3\frac{1}{2}$ feet long board of wood. He cuts out 4 pieces that are each $\frac{2}{3}$ foot long.
   a. Find the combined length of the 4 pieces.
   b. Find the length of the remaining board after Chris gets his 4 pieces.

4. My garden is planted with flowers. $\frac{5}{6}$ of the flowers are roses. $\frac{2}{3}$ of the roses are yellow and the rest are red.
   a. What fraction of the roses is red?
   _____
   b. What fraction of the flowers represents red roses? Write and solve a problem.
   c. What fraction of the flowers represents yellow roses? Write and solve a problem.

5. Find 1/5 of 65 using division

6. Find 1/5 of 65 using multiplication

7. $\frac{2}{15}$ of a class of 30 students are wearing read t-shirts today. How many students is that?

8. Jamar is trying to fit his encyclopedia on a shelf. Each book in his encyclopedia is 2¼ inch thick. The self is 2¼ feet wide. How many books will Jamar be able to fit?

9. What does "10 ½ inches divided by 5¼ inches" mean?
   _____
   _____
   Use an operation to find the answer.

10. What fraction of the flowers in my garden in #4 above are not roses?