Study Guide 2: Percent of Change

Percent of change

Example: Find the percent of change in the cost of the game.
Original cost $55, new cost $50

    subtract 55-50 = $5
    put difference over original

$\frac{5}{55}$, divide 5 ÷ 55= .09
    move decimal to right two places: .09 = 9 %

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* **Sales tax** (or mark up or tip)

Example: step A) to find tax amount - $25 item, 7% sales tax,
multiply 25 X .07=

    $1.75 (tax amount)

        step B) to find total retail cost (plus tax)- 1st do step A
then **Add** that tax amount to item cost.

$1.75 tax + $25 item cost = total cost $26.75

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* **Discount** (or mark down)

 Find 25% of $60.

A) multiply 60 X .25 = $15 (discount amount)
B) To find the total retail cost (with discount): do step A
then **Subtract** discount amount from item cost

 $60 - $15 = $45.

***Simple Interest**

I = P X R X T

Example: John borrows $400, at 5% interest and takes 4 years to pay back the loan.

How much interest will he have to pay?

Solve by: $ 400 X .05 X 4 = $80 interest

Two Step Equations

If the coefficient is a whole number or decimal, __DIVIDE__ both sides by the coefficient. Example: 21= .75a   Divide both sides by .75

If the coefficient is a fraction, __MULTIPLY__ both sides by the reciprocal of that coefficient. Example: 16 = 10/3a   Multiply both sides by 3/10

If the coefficient is written in the form of a fraction, __multiply__ both sides by the bottom number (denominator). Example: r/2.6 = -1.3 Multiply both sides by 2.6.

Example -

$$6p + 2\cancel{2} = 10$$
$$-\cancel{2}2 = -22$$
$$\frac{6}{6}p = \frac{-12}{6}$$
$$\boxed{p = -2}$$

Chapt. 6

There are several different ways to write math expressions with words.

Operation	➕	➖	✖	➗
Numerical Expression	$37 + 28$	$90 - 12$	8×48 or $8 \cdot 48$ or $(8)(48)$ or $8(48)$ or $(8)48$	$327 \div 3$ or $\frac{327}{3}$
Words	• 28 added to 37 • 37 plus 28 • the sum of 37 and 28 • 28 more than 37	• 12 subtracted from 90 • 90 minus 12 • the difference of 90 and 12 • 12 less than 90 • take away 12 from 90	• 8 times 48 • 48 multiplied by 8 • the product of 8 and 48 • 8 groups of 48	• 327 divided by 3 • the quotient of 327 and 3
Algebraic Expression	$x + 28$	$k - 12$	$8 \cdot w$ or $(8)(w)$ or $8w$	$n \div 3$ or $\frac{n}{3}$
Words	• 28 added to x • x plus 28 • the sum of x and 28 • 28 more than x	• 12 subtracted from k • k minus 12 • the difference of k and 12 • 12 less than k • take away 12 from k	• 8 times w • w multiplied by 8 • the product of 8 and w • 8 groups of w	• n divided by 3 • the quotient of n and 3

Fraction Strips with Hundredths Strip

halves

thirds

fourths

fifths

sixths

eighths

ninths

tenths

twelfths

hundredths

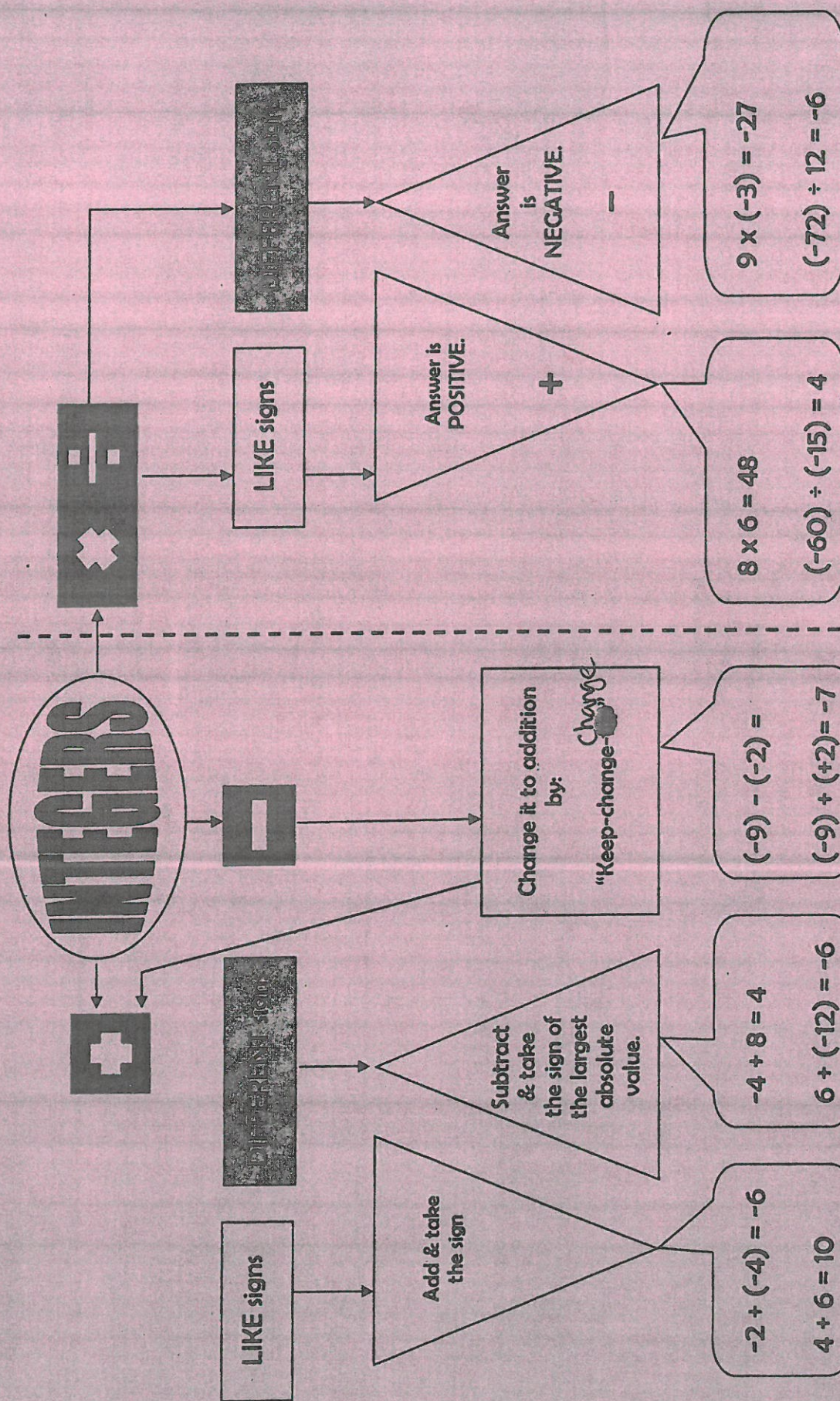$\frac{10}{100}$ $\frac{20}{100}$ $\frac{30}{100}$ $\frac{40}{100}$ $\frac{50}{100}$ $\frac{60}{100}$ $\frac{70}{100}$ $\frac{80}{100}$ $\frac{90}{100}$ $\frac{100}{100}$

INTEGER RULES

study guide

INTEGERS

÷ ✱ (Multiplication & Division)

LIKE signs → Answer is POSITIVE. **+**

$8 \times 6 = 48$

$(-60) \div (-15) = 4$

DIFFERENT signs → Answer is NEGATIVE. **−**

$9 \times (-3) = -27$

$(-72) \div 12 = -6$

− (Subtraction)

Change it to addition by: "Keep-change-change"

$(-9) - (-2) =$

$(-9) + (+2) = -7$

+ (Addition)

DIFFERENT signs → Subtract & take the sign of the largest absolute value.

$-4 + 8 = 4$

$6 + (-12) = -6$

LIKE signs → Add & take the sign

$-2 + (-4) = -6$

$4 + 6 = 10$

Math
Fractions Help Sheet

Common Denominators -
To find the common denominator of two fractions you list their multiples and choose the smallest number they have in common. For example:
1/3 + 3/4 =
The denominators are 3 and 4, so listing their mulitples you get
3 = 3,6,9,12,15,18
4 = 4,8,12,16,20
The smallest number they have in common is 12. That is your new common denominator.
Next, you change each fraction into an equivalent fraction (with the new denominator) by multiplying both the numerator and denominator by the needed factor to get the new denominator.
1/3 x 4/4 = 4/12
3/4 x 3/3 = 9/12

Adding and Subtracting Fractions
You need common denominators to add or subtract fractions.
To Add-
1/3 + 3/4 =
1/3 = 4/12 and 3/4 = 9/12

4/12 + 9/12 = 4+9/12 = 13/12 which must be reduced to 1 1/12

To Subtract-
5/6 - 2/6 = 5-2/6 = 3/6 then simplify to 1/2

2/3 - 1/4 =
First, you need common denominators.
2/3 x 4/4 = 8/12
1/4 x 3/3 = 3/12
Now, you can subtract.
8/12 - 3/12 = 5/12

Changing Mixed Numbers into Fractions
To change mixed numbers to fractions,
1. Multiply the denominator by the whole number.
2. Add the original numerator to that answer. That becomes the new numerator.
3. Put that over the original denominator.
Example:
2 3/4 = 4x2 + 3 = 11
2 3/4 = 11/4

Multiplying Fractions
Simplify the numbers across the diagonals by dividing by the GCF.
Then multiply the numerators . Multiply the denominators . $\cancel{2}/9 \times 1/\cancel{4}\,2 = \boxed{\frac{1}{18}}$
Reduce if needed.   Example: 2/9 x 1/4 $\longrightarrow$

Dividing Fractions
Change the operation to multiplication and flip the fraction that follows the division sign. Simplify the numbers across the diagonals by dividing by the GCF.
Multiply. Reduce if needed.   Example: 1/4 ÷ 3/10 $\longrightarrow$ $\dfrac{1/\cancel{4}}{2} \times \dfrac{^{5}\cancel{10}}{3} = \boxed{5/6}$