Summer Math

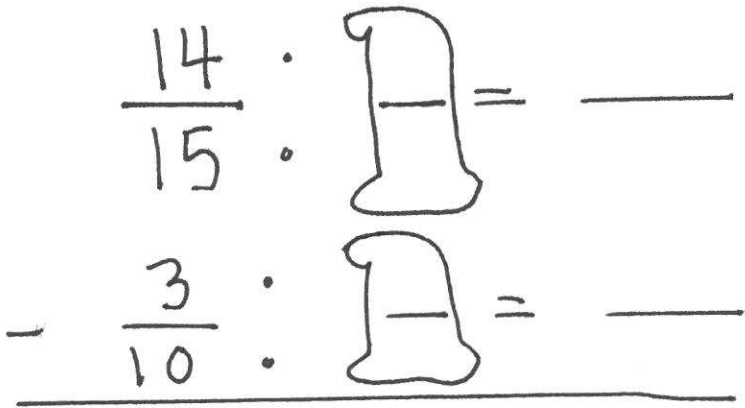## I. Fractions.

A. Simplify all Sums and Differences.

$$\frac{7}{12} + \frac{1}{12} = \underline{\quad} \div \boxed{\underline{\quad}} = \underline{\quad}$$

$$1 - \frac{2}{10} = \underline{\quad} \div \boxed{\underline{\quad}} = \underline{\quad}$$

B. Find the Perimeter. Simplify.

$\frac{5}{12}$ in.

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

$\frac{11}{12}$ in.

$$\frac{7}{9} \cdot \boxed{} = \underline{}$$

$$+ \quad \frac{5}{6} \cdot \boxed{} = \underline{}$$

$9, \underline{\quad}, \underline{\quad} \ldots$

$6, \underline{\quad}, \underline{\quad}, \underline{\quad}$

$$\frac{14}{15} \cdot \boxed{} = \underline{}$$

$$- \quad \frac{3}{10} \cdot \boxed{} = \underline{}$$

$15, \underline{\quad}, \underline{\quad} \ldots$

$10, \underline{\quad}, \underline{\quad}, \underline{\quad} \ldots$

$$3$$
$$- \; 2\frac{1}{4}$$
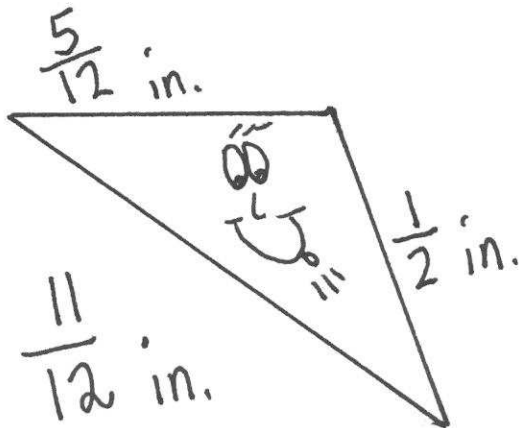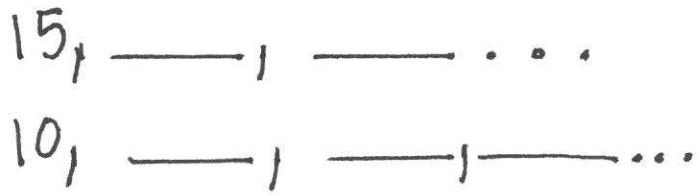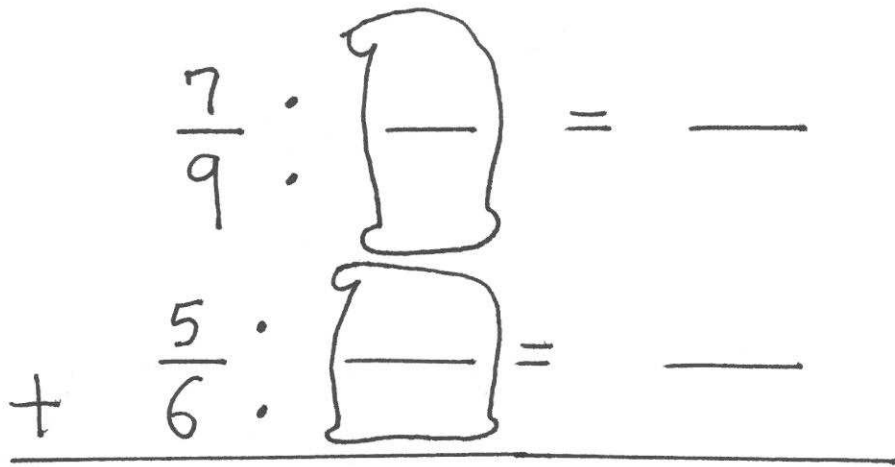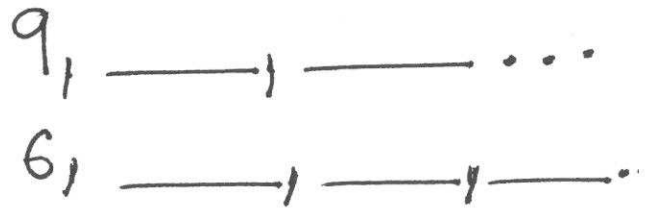
C. Multiply. Simplify all Products.
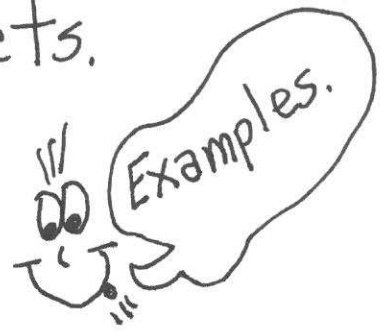
$$\frac{3}{8} \cdot \frac{4}{9} = \frac{12}{72} \div \boxed{\frac{12}{12}} = \frac{1}{6}$$

Examples.

or

$$\overset{1}{\underset{2}{\frac{\cancel{3}}{\cancel{8}}}} \cdot \overset{1}{\underset{3}{\frac{\cancel{4}}{\cancel{9}}}} = \frac{1}{6}$$

$$\frac{7}{10} \cdot \frac{5}{14} =$$

$$\frac{1}{6} \cdot \frac{15}{16} =$$

$$\frac{3}{4} \cdot 7 =$$

D. Dividing Fractions, NOT!

Example:

$$\frac{2}{3} \div \frac{8}{9} = \qquad \frac{2}{3} \times \frac{9}{8} = \frac{18}{24} \div \frac{6}{6} = \frac{3}{4}$$

OR

$$\frac{2}{3} \div \frac{8}{9} = \frac{2}{3} \times \frac{9}{8} = \frac{3}{4}$$

$$\frac{4}{5} \div \frac{16}{25} = $$

$$\frac{7}{9} \div \frac{2}{3} = $$

$$\frac{3}{8} \div \frac{9}{24} = \underline{\quad}$$

$$\frac{1}{2} \div \frac{9}{10} = \underline{\quad}$$

$$\frac{7}{12} \div \frac{14}{15} = \underline{\quad}$$

$$\frac{9}{16} \div \frac{3}{4} = \underline{\quad}$$

II. Integers.

A. Write the addition problem represented by the picture. Solve.

⊕ ⊕ ⊕
⊖ ⊖ ⊖ ⊖   ___ + ___ = ___

⊕ ⊕ ⊕ ⊕ ⊕ ⊕ ⊕
⊖ ⊖ ⊖
                ___ + ___ = ___

⊕ ⊕ ⊕ ⊕ ⊕
⊖ ⊖ ⊖ ⊖ ⊖   ___ + ___ = ___

⊕ ⊕ ⊕ ⊕
                ___ + ___ = ___
⊖ ⊖ ⊖ ⊖ ⊖ ⊖

B. Add.

$-7 + 2 =$ _____ $8 + (-3) =$ _____

$-12 + (-4) =$ _____ $-9 + 15 =$ _____

$-6 + (-5) =$ _____ $12 + (-14) =$ _____

C. Subtract... NOT!

Example: $-8 - (-4) = \underline{-8} + \underline{4} = \underline{-4}$

Keep   Change   Change

$10 - (-5) =$ _____ _ _____ = _____

$-1 - 3 =$ _____ _ _____ = _____

$5 - 8 =$ _____ _ _____ = _____

$-7 - 9 =$ _____ _ _____ = _____

III. Use the Line Plot to Answer.

Number of Blue M+Ms in a bag.

```
                        X
              X         X                   X
              X         X          X        X
  X        X  X         X          X  x  x        X
  <—|——————|———|————|————|————|——————|———|——|——————————>
    8      16  24   32   40   48    56  64
```
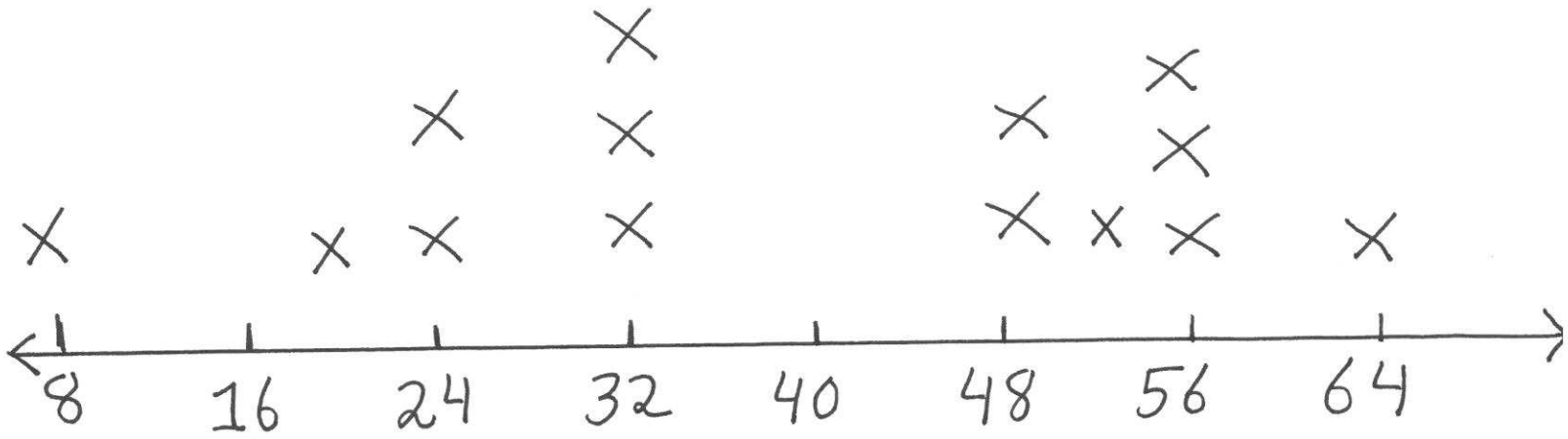
How many bags had 20 or fewer blue M+Ms?

_____

How many bags had more than 48 blue M+Ms?

_____

Find the Landmarks (except for the Mean.).

minimum: _____   mode(s): _____

maximum: _____

                         median: _____

range: _____

IV. Multiplying and Dividing Integers.
Remember Your Rules!

Positive times Positive = Positive $\quad (+) \div (+) = (+)$

Negative times Negative = Positive $\quad (-) \div (-) = (+)$

ALSO

Positive times Negative = Negative $\quad (+) \div (-) = (-)$

Negative times Positive = Negative $\quad (-) \div (+) = (-)$

$-8 \cdot (-3) = \underline{\quad}$ $\qquad$ $^-18 \div (-6) = \underline{\quad}$

$\dfrac{-72}{9} = \underline{\quad}$ $\qquad$ $-6 \cdot 7 = \underline{\quad}$ $\qquad$ $\dfrac{100}{-4} = \underline{\quad}$

$\dfrac{-84}{-12} = \underline{\quad}$ $\qquad$ $-8 \cdot 9 = \underline{\quad}$ $\qquad$ $-13 \cdot (-2) = \underline{\quad}$

Ⅴ. Solve for the unknown.

Examples: $-7a = -56$ $a = 8$

$\dfrac{-36}{x} = 4$ $x = \underline{-9}$

Think: $\dfrac{-36}{4}$ ⌣

Think:

$\dfrac{-7a}{-7} = \dfrac{-56}{-7}$ ⌣

or

$\dfrac{b}{-5} = 10$ Think: $10 \cdot -5$ ⌣

$b = \underline{-50}$

$\dfrac{c}{-9} = -7$ $c = \underline{\hspace{3cm}}$

$5w = -45$ $w = \underline{\hspace{2.5cm}}$

$\dfrac{-72}{d} = -4$ $d = \underline{\hspace{2.5cm}}$

$$\frac{-56}{u} = -7 \qquad u = \underline{\hspace{3cm}}$$

$$12b = -108 \qquad b = \underline{\hspace{3cm}}$$

$$-6a = -96 \qquad a = \underline{\hspace{3cm}}$$

$$\frac{e}{-4} = 16 \qquad e = \underline{\hspace{3cm}}$$

$$-10f = -70 \quad f = \underline{\hspace{1.5cm}} \qquad \frac{q}{3} = -12 \quad q = \underline{\hspace{1.5cm}}$$

$$\frac{42}{b} = 7 \quad b = \underline{\hspace{1.5cm}} \qquad \frac{c}{-5} = 15 \quad c = \underline{\hspace{1.5cm}}$$

$$\frac{g}{-9} = -9 \quad g = \underline{\hspace{1.5cm}} \qquad -2z = 36 \quad z = \underline{\hspace{1.5cm}}$$

VI. Percents.

A. Rewrite each fraction as a percent.

$\frac{1}{2} =$ _____

$\frac{1}{4} =$ _____

$\frac{3}{4} =$ _____

$\frac{1}{8} =$ _____

$\frac{3}{8} =$ _____

$\frac{5}{8} =$ _____

$\frac{7}{8} =$ _____

$\frac{1}{5} =$ _____

$\frac{7}{25} =$ _____

$\frac{1}{3} =$ _____

$\frac{2}{3} =$ _____

$\frac{4}{5} =$ _____

$\frac{1}{6} =$ _____

$\frac{5}{6} =$ _____

$\frac{3}{5} =$ _____

$\frac{5}{9} =$ _____

$\frac{39}{50} =$ _____

$\frac{7}{11} =$ _____

B. Answer.

50% of $48 =$ _____ $66\frac{2}{3}\%$ of $36 =$ _____

25% of $48 =$ _____ $33\frac{1}{3}\%$ of $36 =$ _____

$12\frac{1}{2}\%$ of $48 =$ _____

$16\frac{2}{3}\%$ of $36 =$ _____

You spend \$89.54 for dinner (for you and a friend). You decided to leave a 20% tip. How much would you leave in all? To make things easier you rounded \$89.54 to the nearest 10.

On July 18th it snowed 28 inches and on July 19th it snowed 7 inches. (This is in the Andes in Chilie ☺). What was the percent of change?

VII. Find the Area.

12 cm

5 cm

Go Nationals.

13 cm.

6.4 in.

8 in.

8 in.   7 in.

$14\frac{1}{2}$ in.

10 in.
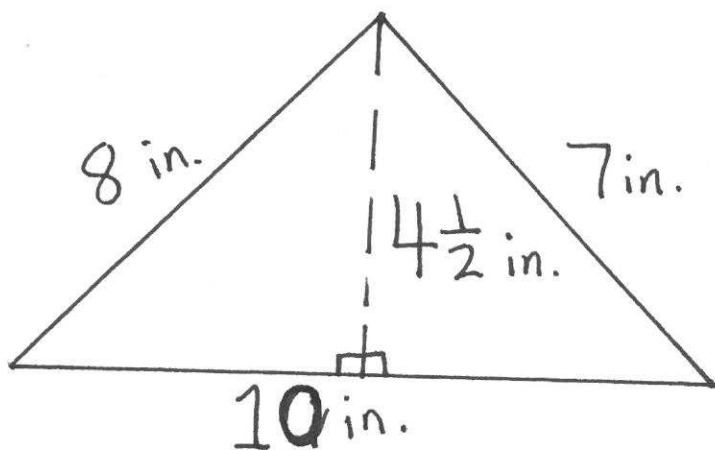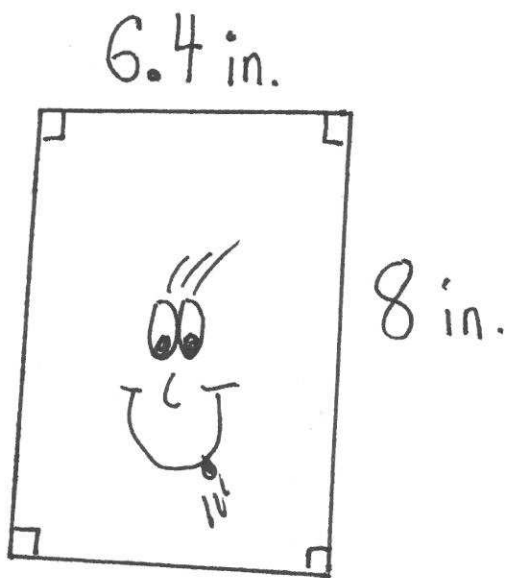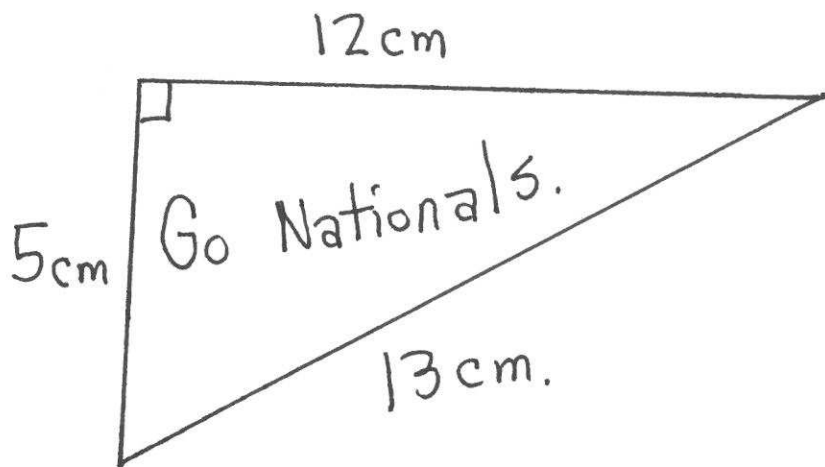
VIII. Exponential Notation.

$7^2 =$ _____ $10^0 =$ _____ $3^4 =$ _____

$9^3 =$ _____ $6^2 =$ _____ $12^1 =$ _____

$2^5 =$ _____ $5^3 =$ _____ $8^2 =$ _____

$10^6 =$ _____ $3^3 =$ _____ $4^2 =$ _____

$x^2 = 81$ $x =$ _____ $b^2 = 121 =$ _____

$c^2 = 9$ $c =$ _____ $d^2 = 49 =$ _____

$x^2 = 144$ $x =$ _____ $v^2 = 289$ $v =$ _____

$\sqrt{196} =$ _____ $\sqrt{100} =$ _____

IX. Math Vocabulary.

A. Fill-in the blanks.

I know... I bet that you were expecting this section!

Sum *
Product *
multiples *
Quotient *
Difference *
factors *

The _____ of 8 are 1, 2, 4 and 8.

12 is the _____ of 20 and 8.

24 is the _____ of 15 and 9.

The _____ of 7 are 7, 14, 21, 28 ...

The _____ of 42 and 7 is 6.

18 is the _____ of 2 and 9.

B. Answer.

What is the difference of seven squared and three cubed?

_____

What is the quotient of 12 squared and 2 cubed?

_____

What is 15 more than the quotient of 48 and 6?

_____

What is 24 fewer than the product of 10 and 13?

_____

C. Logical Reasoning.

I like these!

	2	9	16	8	7
Adam					
Diane					
Jonathan					
Danielle					
Karina					

CLUB 1 :: The girls whose names begin with the same first letter favorite numbers are prime numbers.

CLUB 2 : The boys favorite numbers are square numbers.

CLUB 3 : The students with the same number of letters in their names favorite numbers are even numbers.

D. Answer.

Which number is the product of 8 and 4, tripled? _____

X. Solve and Check.

Example $3x - 18 = 9$

$$\underline{\quad +18 \quad +18}$$

$$\frac{3x}{3} = \frac{27}{3}$$

$$x = 9$$

$3(9) - 18 = 9$

$27 - 18 = 9$ $\overset{||}{\smile}$

$6x - 36 = 42$ <u>Check</u>

$4x + 12 = 36$ <u>Check</u>

$7x - 35 = 21$

$12x + 2 = 74$

$3x - 27 = 18$
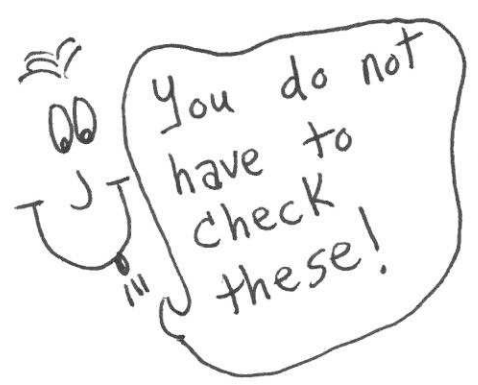
$$\frac{3}{4}x + 6 = 18$$

Check

$$\frac{2}{3}x - 6 = 8$$

Check

$$\frac{5}{6}x - 7 = 3$$

Check

$$X - \frac{2}{3} = \frac{1}{6}$$

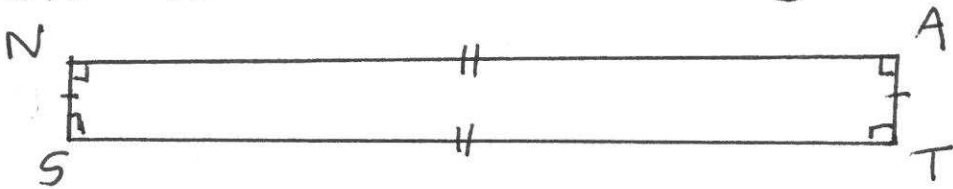$$X - \frac{3}{8} = \frac{7}{12}$$

$$X - \frac{5}{6} = \frac{9}{10}$$

$$\frac{x}{8} = \frac{27}{72} \qquad X = \underline{\hspace{2cm}}$$

$$\frac{63}{91} = \frac{9}{b} \qquad b = \underline{\hspace{2cm}}$$

$$\frac{4}{C} = \frac{16}{28} \qquad C = \underline{\hspace{2cm}}$$

XI. Think About It and Answer.

The area of the rectangle is $48\,cm^2$. The perimeter is 38 cm. How long is each side?

$\overline{NA}$: _____ $\overline{AT}$: _____ $\overline{TS}$: ____ $\overline{SN}$: ____