Math 107
Fall 2017
Lecture 6


Translate only:
The product of Some number and 1 less than twice the number is equal to 45.

Let $x$ be the number,

$$
x \cdot(2 x-1)=45
$$

Translate only:
Ratio of Some number and 10 is the same as the ratrio of 7 and (5). $\frac{x}{10}=\frac{7}{5}$

What percent of 1600 is 520?

$$
\begin{aligned}
& \frac{P}{100}=\frac{P a r t}{\text { whole }} \quad \begin{array}{l}
\text { whole comes } \\
\text { after of }
\end{array} \\
& \frac{P}{100}=\frac{520}{1600} \\
& 1600 P=100(520) \\
& P=\frac{100(520)}{1600} \quad P=32.5
\end{aligned}
$$

$32.5 \%$ of 1600 is 520 .
2.5 pounds of sugar for 100 muffins. use the ratio to find how many pounds of sugar for 480 muffins.

$$
\begin{aligned}
& \frac{2.5 \text { pounds sugar }}{100 \text { muffins }}=\frac{x \text { pounds sugar }}{480 \text { muffins }} \\
& \frac{2.5}{100}=\frac{x}{480}
\end{aligned} \begin{array}{r}
100 x=480(2.5) \\
\left\{\begin{array}{l}
\text { pounds of sugar } \\
\text { for } 480 \text { muffins }
\end{array}\right.
\end{array}
$$

Irma has 47 Coins. Dimes $\dot{\varepsilon}$ nickels only.
The \# of dimes is 1 fewer than 3 times the \# of nickels.

1) How many of each? Dimes $+\frac{\text { Nickel }}{4}=47$
$3 x-1+x=47$

$$
\left\{\begin{array}{c}
12 \text { Nickels }\left\{\begin{array} { l } 
{ 3 ( 1 2 ) - 1 } \\
{ = 3 5 } \\
{ 3 5 }
\end{array} \left\{\begin{array}{l}
4 x-1=47 \\
4 x=48 \\
x=\frac{48}{4}
\end{array} \quad x=12\right.\right.
\end{array}\right.
$$

2) Bonus Question: How much money does she have? $12(5 \$)+35(10 \$)=60 \$+350 \$$

$$
=410 \$, \$ 4.10
$$

John has a piece of wood 98 cm long. He cut it into 3 pieces. One piece is twice another piece.
The third piece was 2 cm longer than 3 times the shortest piece of othe two Piece
find the measure of each piece.

$$
\begin{gathered}
x+\frac{2 x}{\text { first }+ \text { Second }+ \text { Third }=98} \\
x+2 x+3 x+2=98
\end{gathered}
$$

$$
\begin{aligned}
& 6 x \quad 92 \\
& 6 x=96 \\
& x=\frac{96}{6} \quad x=16
\end{aligned}
$$



Two sides of a triangle are equal. Third side is 7 inches shorter than the sum of equal sides.
find all three sides if the perimeter is 41 inches.

$$
p=41
$$



Side $1+$ Side $2+$ Side $3=412 x-7$

$$
4 x \in 7=41
$$

$$
x+x+2 x-7=41
$$

$$
4 x=48
$$

$$
x=48 / 4 \quad x=12
$$

The length of a rectangular bill board is 1 ft longer than 3 times its width.

The perimeter is 42 ft .
find its area.


$$
\left.\left.\begin{array}{c}
P=42 \\
2 L+2 w=42 \\
2(3 x+1)+2 x=42 \\
6 x+2+2 x=42 \\
8 x+2=42
\end{array}\right\} \begin{array}{c}
8 x=42-2 \\
8 x=40 \\
x=\frac{40}{8} \\
x=5
\end{array}\right\} \begin{aligned}
& A=L W \\
& =5(16) \\
& =80 \\
& 80 \mathrm{ft}^{2}
\end{aligned}
$$

