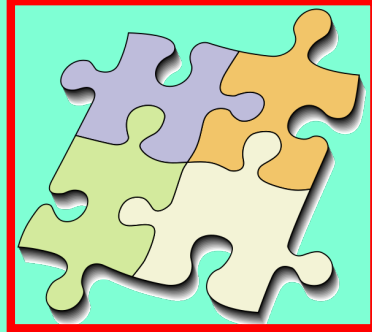
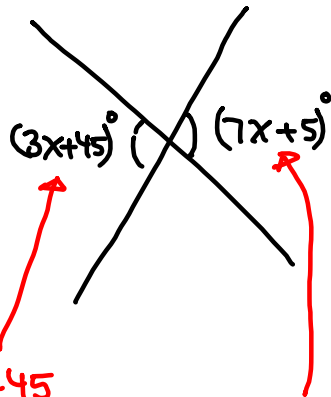


Math 107
Fall 2017
Lecture 10



Find x , then the measure of marked angles:



$$\begin{aligned} 3(10) + 45 \\ = 30 + 45 \\ = 75^\circ \end{aligned}$$

$$\begin{aligned} 7(10) + 5 \\ = 70 + 5 \\ = \boxed{75^\circ} \end{aligned}$$

Hint: They are
 vertical angles,
 therefore, they
 must be equal.

$$7x + 5 = 3x + 45$$

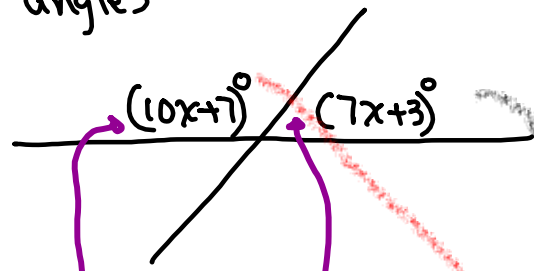
$$7x - 3x = 45 - 5$$

$$4x = 40$$

$$x = \frac{40}{4}$$

$$\boxed{x = 10}$$

find x , then find the measure of marked angles



Hint: Adjacent angles are supplementary, therefore their sum is 180°

$$10x + 7 + 7x + 3 = 180$$

$$17x + 10 = 180$$

$$17x = 180 - 10$$

$$17x = 170$$

$$x = \frac{170}{17} \quad \boxed{x = 10}$$

$$7(10) + 3 = 73^\circ$$

$$10(10) + 7 = 107^\circ$$

$$73^\circ \hat{+} 107^\circ$$

Angles A and B are complementary.

Angle A is two more than 3 times angle B.

Find both angles.

$$A \rightarrow 3x + 2$$

$$B \rightarrow x$$

$$\boxed{B \rightarrow 22^\circ}$$

$$A \rightarrow 3(22) + 2$$

$$\boxed{A \rightarrow 68^\circ}$$

$$\boxed{A} + \boxed{B} = 90^\circ$$

$$3x + 2 + x = 90$$

$$4x + 2 = 90$$

$$4x = 90 - 2$$

$$4x = 88$$

$$x = \frac{88}{4} \quad \boxed{x = 22}$$

Angles A and B are **Supplementary** angles.
 Angle A is 3 times angle B.

Find both angles. $\boxed{A} + \boxed{B} = 180^\circ$

$$B \rightarrow x \rightarrow 45^\circ$$

$$3x + x = 180$$

$$A \rightarrow 3x \rightarrow 3(45) = 135^\circ$$

$$4x = 180$$

$$x = 45$$

$45^\circ \text{ \& } 135^\circ$

Find an angle such that
 its **Supplement** is **39°** more than **twice its Complement**.

Angle	Complement	Supplement
x	$90 - x$	$180 - x$

$$\text{Supplement} = 2 \cdot \text{Complement} + 39$$

$$180 - x = 2(90 - x) + 39$$

$$\boxed{180} - x = 180 - \boxed{2x} + 39$$

$$-x + 2x = \cancel{180} + 39 - \cancel{180}$$

$$x = 39$$

39°

Find an angle such that the sum of its complement and its supplement is 160°

Angle	Comp.	Suppl.
x	$90-x$	$180-x$

$$\text{Compl.} + \text{Suppl.} = 160$$

$$90-x + 180-x = 160$$

$$270 - 2x = 160$$

$$-2x = 160 - 270$$

$$-2x = -110$$

$$x = \frac{-110}{-2}$$

$$x = 55$$

55°

Find an angle whose supplement is 38° less than 3 times its complement.

Angle	Comp.	Suppl.
x	$90-x$	$180-x$

$$\text{Suppl.} = 3 \cdot \text{Comp.} - 38$$

$$180-x = 3 \cdot (90-x) - 38$$

$$180-x = 270 - 3x - 38$$

$$-x + 3x = 270 - 38 - 180$$

$$2x = 52$$

$$x = \frac{52}{2}$$

$$x = 26$$

26°

I have 3 Dimes and 7 Quarters.

How much money do I have?

$$3(10¢) + 7(25¢) = 205¢ = \$2.05$$

Lisa has \$2.05 in dimes & Quarters only.

of Quarters is 1 more than twice # of dimes. How many of each does she have?

Dimes $\rightarrow x$

$$10x + 25(2x+1) = 205$$

Quarters $\rightarrow 2x+1$

$$10x + 50x + 25 = 205$$

$$60x + 25 = 205$$

$$60x = 205 - 25$$

$$60x = 180$$

$$x = \frac{180}{60}$$

$$x = 3$$

3 Dimes

$2(3)+1$ Quarters

$$= 7$$

3 Dimes
 &
 7 Quarters