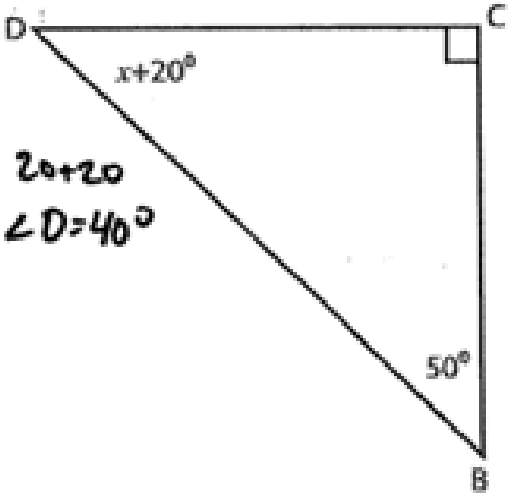
Get out your homework and have it ready to check. We will have a target check on Tuesday over finding missing angles. **Warm on #2 from your homework from last night!**

Classwork - Finding Missing Angles

1) Write and solve an equation to find the value of x. Find the measurements of the missing angles using x.

A)



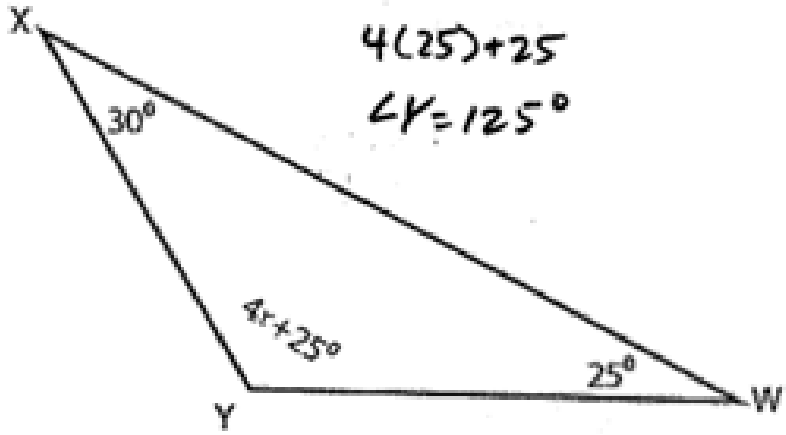
20+20
∠D=40°

Equation → x+20+90+50 = 180

x+160 = 180
-160 -160
x = 20

$x =$ 20 $m\angle D =$ 40°

B)



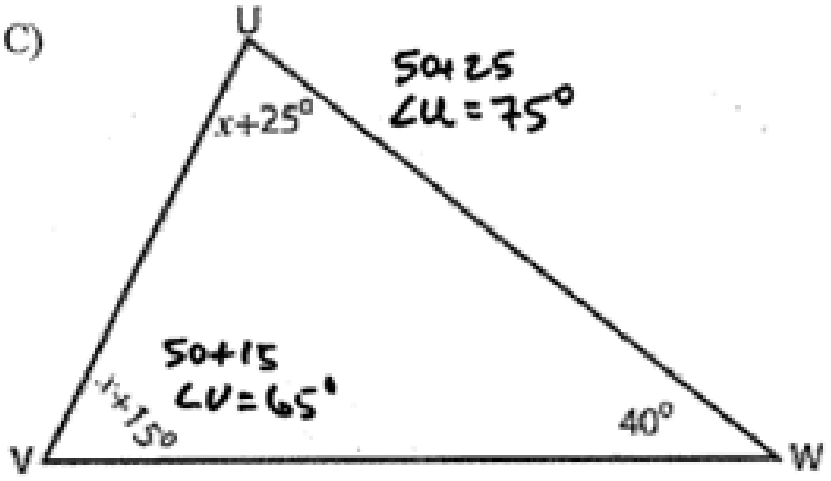
4(25)+25
∠Y = 125°

Equation → 30+4x+25+25 = 180

4x + 80 = 180
-80 -80
4x = 100
4 4
x = 25

$x =$ 25 $m\angle Y =$ 125°

C)



Equation → $x+25+x+15+40=180$

$2x+80=180$

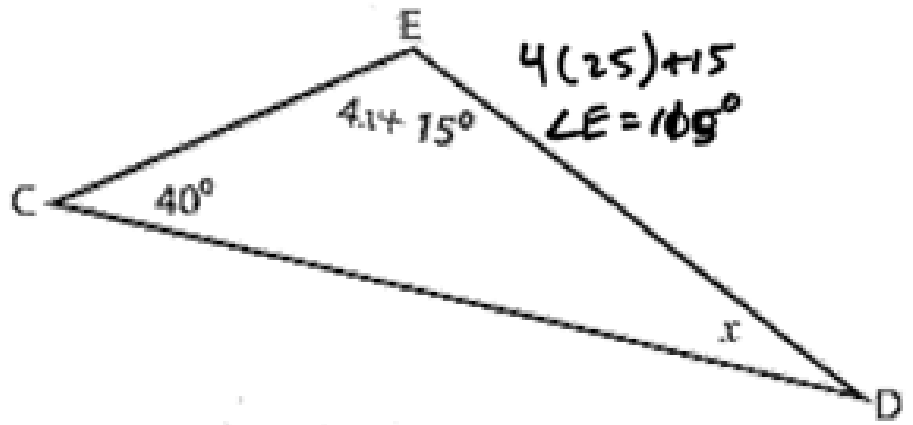
$-80 \quad -80$

$\frac{2x=100}{2 \quad 2}$

$x=50$

$x=$ 50 $m\angle V=$ 65° $m\angle U=$ 75°

D)



Equation → $x+4x+15+40=180$

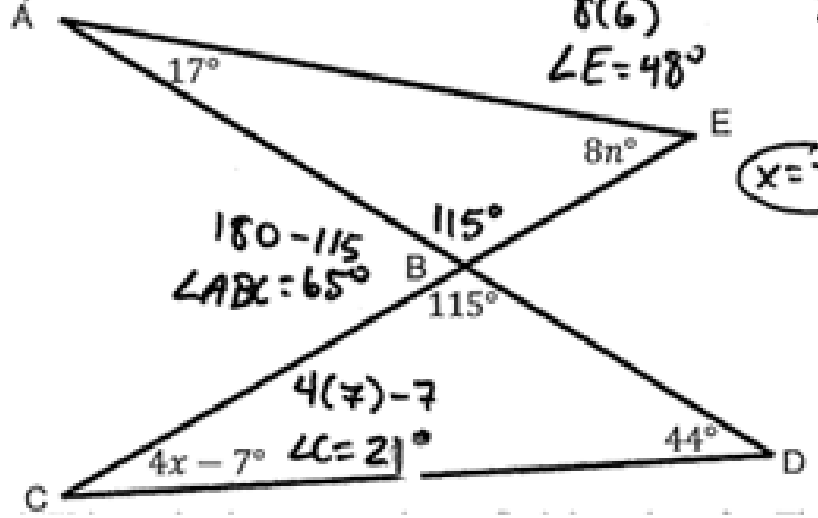
$5x+55=180$

$-55 \quad -55$

$\frac{5x=125}{5 \quad 5}$ $x=25$

$x=$ 25 $m\angle D=$ 25° $m\angle E=$ 115°

E) Find the value of x and n.



$4x-7+115+44=180$

$4x+152=180$

$-152 \quad -152$

$\frac{4x}{4}=\frac{28}{4}$

$x=7$

$8n+115+17=180$

$8n+132=180$

$-132 \quad -132$

$\frac{8n}{8}=\frac{48}{8}$

$n=6$

8(6)

$\angle E=48°$

180 − 115

$\angle ABC=65°$

4(7) − 7

$\angle C=21°$

$x=$ 7 $\quad n=$ 6 $\quad m\angle C=$ 21°

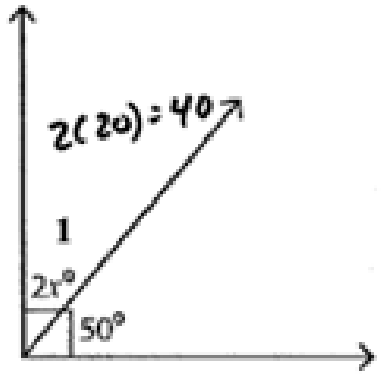
$m\angle E=$ 48° $\quad m\angle ABC=$ 65°

F) Name the angle that is vertical angles with $\angle ABC$.

$\angle DBE$

2) Write and solve an equation to find the value of x. Then find the missing angle.

A)



2(20) = 40

$2x+50=90$

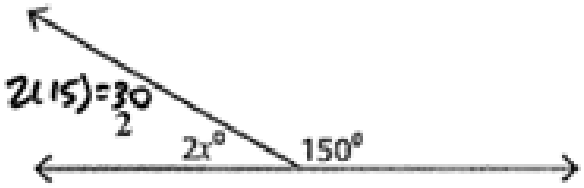
$-50 \quad -50$

$\frac{2x}{2}=\frac{40}{2}$

$x=20$

$x=$ 20 $\quad m\angle 1=$ 40°

B)



$2(15)=30$

$2x+150=180$

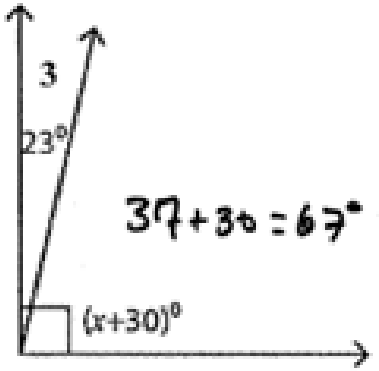
$-150 \quad -150$

$\frac{2x}{2}=\frac{30}{2}$

$x=15$

$x=$ 15 $\quad m\angle 2=$ 30°

C)



37 + 30 = 67°

$x+30+23=90$

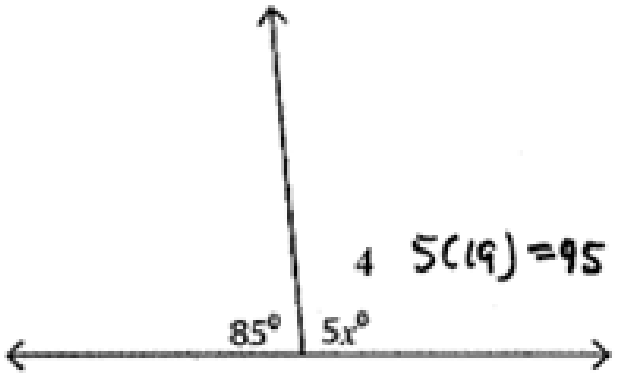
$x+53=90$

$-53 \quad -53$

$x=37$

$x=$ 37 $\quad m\angle 3=$ 67°

D)



$5x+85=180$

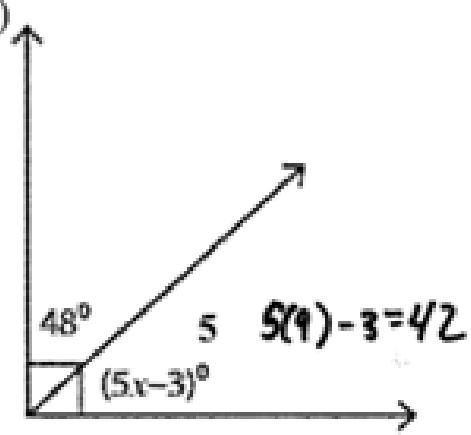
$-85 \quad -85$

$\frac{5x}{5} = \frac{95}{5}$

$x = 19$

$x =$ 19 $m\angle 4 =$ 95°

E)



$5x-3+48=90$

$5x+45=90$

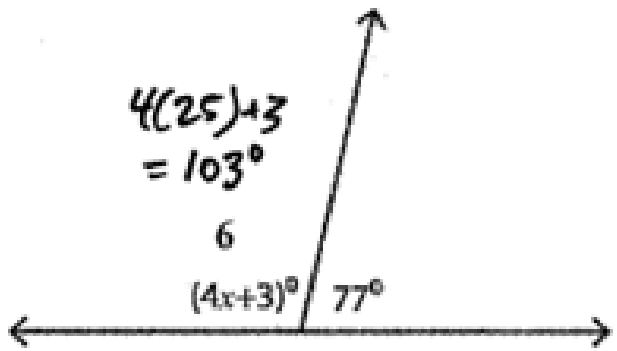
$-45 \quad -45$

$\frac{5x}{5} = \frac{45}{5}$

$x = 9$

$x =$ 9 $m\angle 5 =$ 42°

F)



$4x+3+77=180$

$4x+80=180$

$-80 \quad -80$

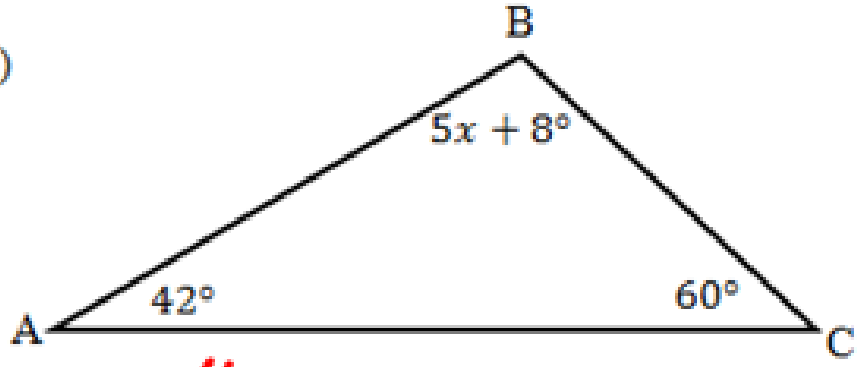
$\frac{4x}{4} = \frac{100}{4}$

$x = 25$

$x =$ 25 $m\angle 6 =$ 103°

1) Write and solve an equation to find the value of x. Find the measurements of the missing angles using x.

A)



Equation → $42 + 5x + 8 + 60 = 180$

$5x + 110 = 180$

$-110 \quad -110$

$\frac{5x}{5} = \frac{70}{5}$

$x = 14$

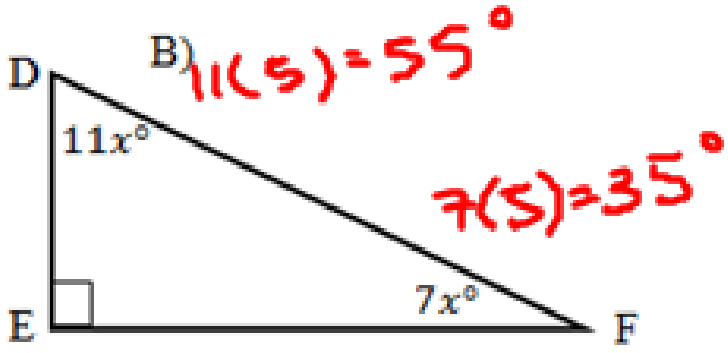
$x = \underline{14}$ $\angle B = \underline{78^0}$

$5(14) + 8$

$70 + 8$

$= 78$

B)



$11(5) = 55°$

$7(5) = 35°$

Equation → $11x + 7x + 90 = 180$

$18x + 90 = 180$

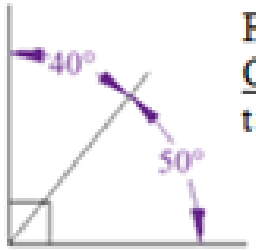
$-90 \quad -90$

$\frac{18x}{18} = \frac{90}{18}$

$x = 5$

$x = \underline{5}$ $\angle D = \underline{55°}$ $\angle F = \underline{35°}$

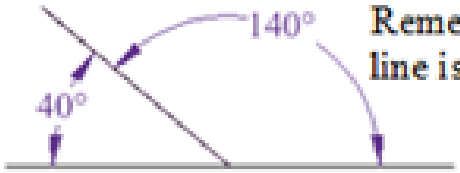
Complementary Angles – angles that add to 90°



Remember → Giving a COMPLEMENT is the RIGHT thing to do.

$40° + 50° = 90°$

Supplementary Angles – angles that add to 180°

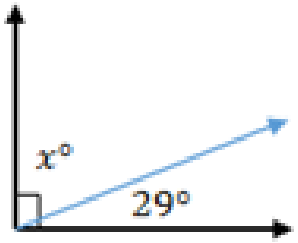


Remember → Every straight line is equal to 180°

$40° + 140° = 180°$

2) Write and solve an equation to find the value of x. Then find the missing angle(s).

A)

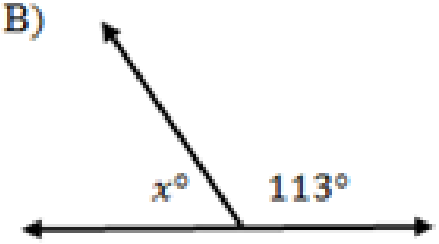


Relationship Complementary

$x + 29 = 90$

$x =$ 61°

B)

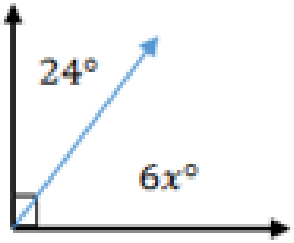


Relationship Supplementary

$x + 113 = 180$

$x =$ 67°

C)

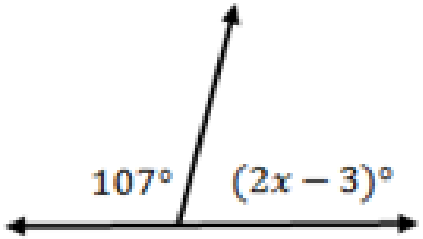


Relationship Comp.

$6x + 24 = 90$

$x =$ 11 $\angle =$ 66°

D)



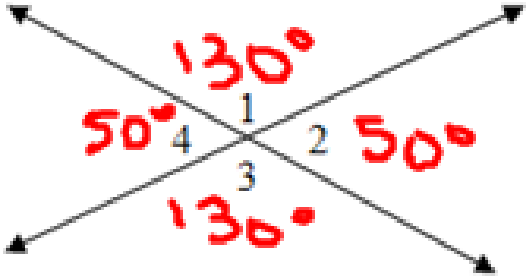
Relationship Supp.

$2x - 3 + 107 = 180$

$x =$ 38 $\angle =$ 73°

Intersecting Lines

When two lines intersect, they form two pairs of opposite angles that are congruent (equal).



∠1 and ∠3 are vertical angles with one another. This means that they are congruent and have the same angle measurement.

∠2 and ∠4 are vertical angles with one another. This means that they are congruent and have the same angle measurement.

A) If ∠1 is 130°, that means that ∠3 is 130 degrees.

B) ∠1 and ∠2 form a straight line. What angle relationship is shown between ∠1 and ∠2?

Supplementary Angles

C) This means that ∠1 + ∠2 = 180 degrees. Determine the angle measurement of ∠2.

$m\angle 2 = 180° - 130° = 50°$

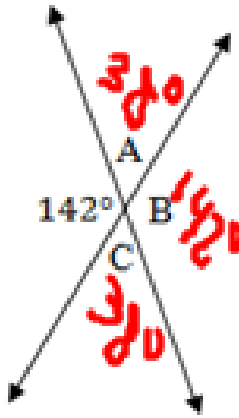
D) What is the angle measurement of ∠4?

$\angle 4 = 50°$

$\angle A = 180 - 29 = 151°$

3) Find the angle measurement of each angle using the information you are given.

A)



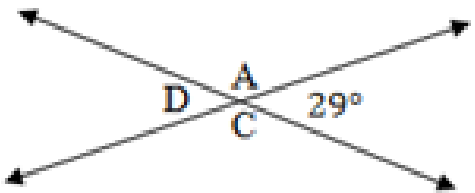
$\angle A =$ 38°

$\angle B =$ 142°

$\angle C =$ 38°

$\angle A = 180 - 142 = 38°$

B)



$\angle A =$ 151°

$\angle C =$ 151°

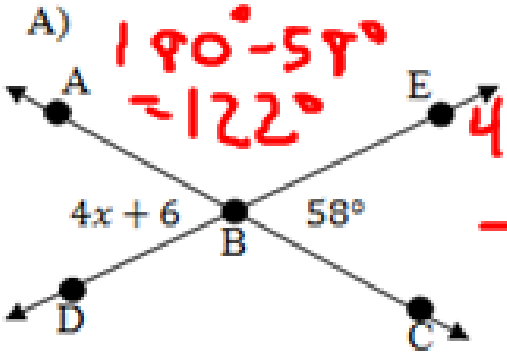
$\angle D =$ 29°

Vertical Angles

Vertical angles are congruent to one another, which means that their angle measures, or the expressions that represent the angle, are equal to one another.

4) Write and solve an equation to find the value of x. Then find the measurements of the missing angles.

A)



180° - 58° = 122°

4x + 6 = 58

−6 −6

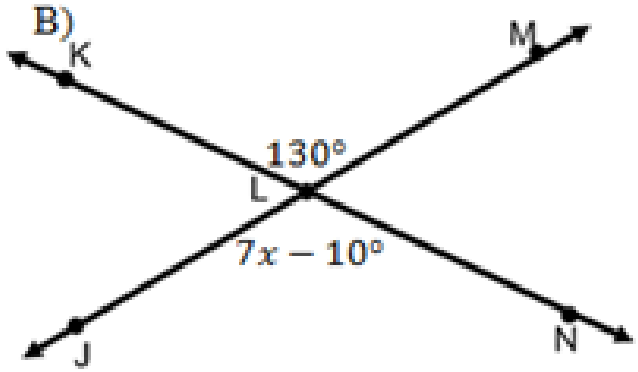
4x = 52

x = 13

$x =$ 13 use x to find $\angle ABD =$ 58°

$\angle ABE =$ 122° $\angle DBC =$ 122°

B)



$x =$ _____ $\angle KLJ =$ _____

$\angle JLN =$ _____ $\angle MLN =$ _____