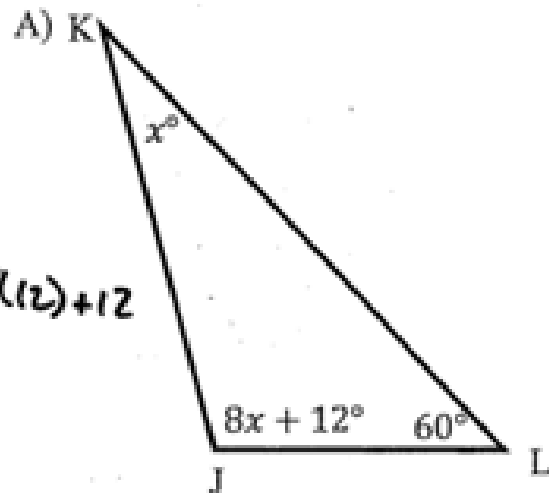# Get out your homework and have it ready to check. Quiz on Friday. Target Check today!

Classwork - Angle Relationships Review

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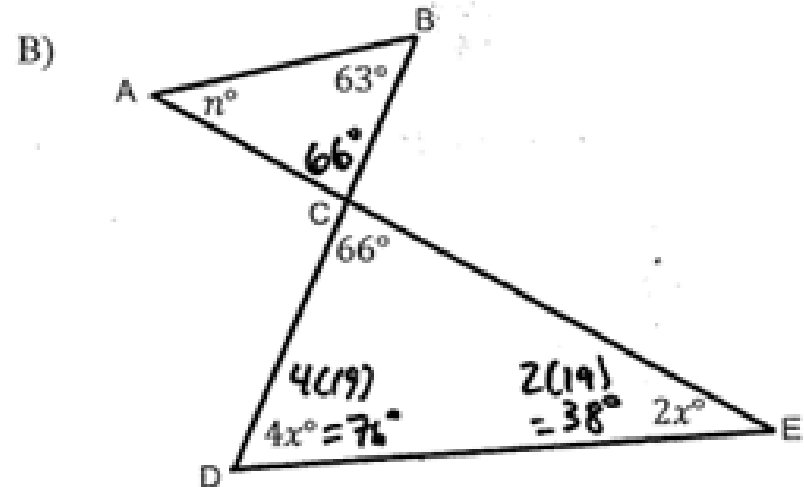SHOW WORK AND LABEL

A) K

$8(12)+12$

$8x + 12°$ $60°$

J   L

$x + 8x + 12 + 60 = 180$

$9x + 72 = 180$

$-72 \quad -72$

$\dfrac{9x}{9} = \dfrac{108}{9}$ (x = 12)

$x = \underline{12} \quad \angle J = \underline{108°} \quad \angle K = \underline{12°}$

B)

A $n°$ $63°$

$66°$

C

$66°$

$4(19)$ $2(19)$

$4x° = 76°$ $= 38° \quad 2x°$ E

D

$4x + 2x + 66 = 180$

$6x + 66 = 180$

$-66 \quad -66$

$\dfrac{6x}{6} = \dfrac{114}{6}$

(x = 19)

$n + 66 + 63 = 180$

$n + 129 = 180$

$-129 \quad -129$

$n = 51$

$x = \underline{19} \quad n = \underline{51} \quad \angle ACB = \underline{66°}$

$\angle D = \underline{76°} \quad \angle E = \underline{38°} \quad \angle A = \underline{51°}$
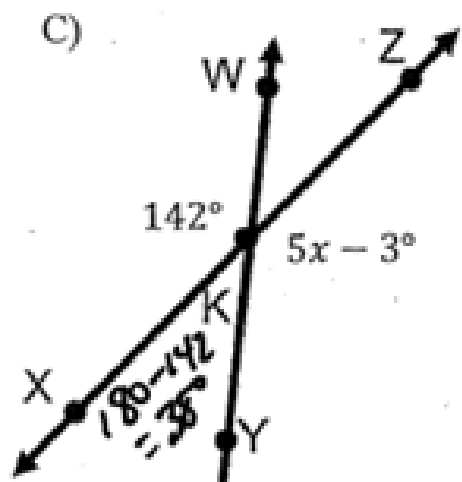
C)

W Z

$142°$

$5x - 3°$

K

$180-142$
$=38$

X

$180-142$

Y

$5x - 3 = 142$

$+3 \quad +3$

$\dfrac{5x}{5} = \dfrac{145}{5}$ $x = 29$

$x = \underline{29}$ $\angle YKZ = \underline{142°}$

$\angle YKW = 38°$ $\angle WKZ = 38°$

∠YKW

D) $4(27) + 15$
$= 123°$

$4x + 15°$ / $57°$

A B E
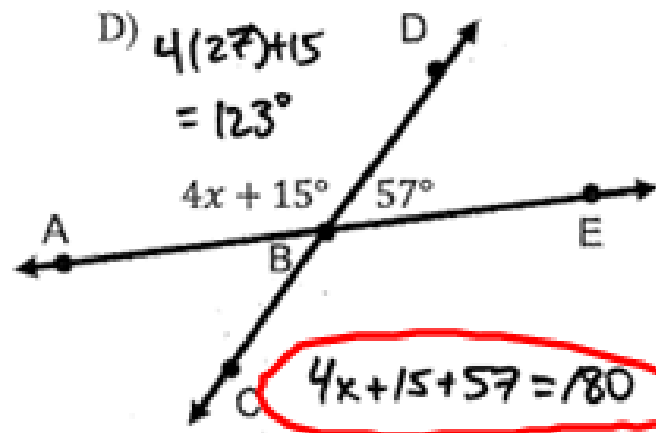
$4x + 15 + 57 = 180$

$4x + 72 = 180$

$-72 \quad -72$

$\dfrac{4x}{4} = \dfrac{108}{4}$

$x = 27$

$x = \underline{27}$ $\angle ABC = \underline{57°}$

$\angle ABD = 123°$ $\angle CBE = 123°$

E)

Q U

$12x + 17°$

$137°$ R

T

$180 - 137$
$= 43°$

S
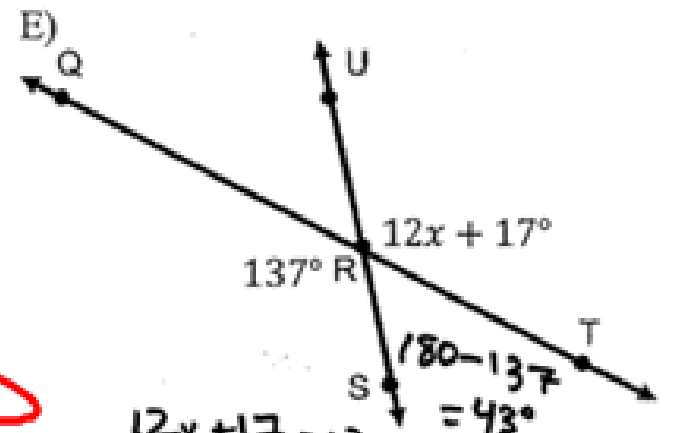
$12x + 17 = 137$

$-17 \quad -17$

$\dfrac{12x}{12} = \dfrac{120}{12}$

$x = 10$

$x = \underline{10}$ $\angle URT = \underline{137°}$

$\angle QRU = 43°$ $\angle SRT = 43°$

relationship is shown (Complementary or Supplementary) in the space provided.
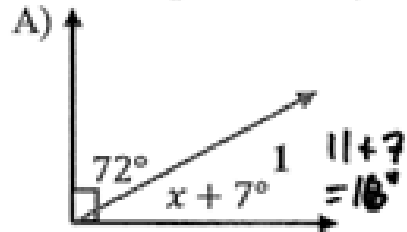
A)

$48-11$
$4 = 37°$

$72°$

1 $11+7$
$= 18°$

$x + 7°$

Relationship: **Complementary**

$$x + 7 + 72 = 90$$
$$x + 79 = 90$$
$$-79 \quad -79$$
$$x = 11$$

$x = \underline{11}$ $\angle 1 = \underline{18°}$

B)

$4(15)$
$= 60°$ 2

$8(15) = 120°$
3

$4x°$ $8x°$

Relationship: **Supplementary**

$$4x + 8x = 180$$
$$\frac{12x}{12} = \frac{180}{12} \quad x = 15$$

$x = \underline{15}$

$\angle 2 = \underline{60°}$ $\angle 3 = \underline{120°}$

C)

$x - 11°$

5 $48+5$

$x + 5°$ $= 53°$

Relationship: **Complementary**

$$x - 11 + x + 5 = 90$$
$$2x - 6 = 90$$
$$+6 \quad +6$$
$$\frac{2x}{2} = \frac{96}{2} \quad \boxed{x = 48}$$

$x = \underline{}$

$\angle 4 = \underline{37°}$ $\angle 5 = \underline{53°}$

D)

$10(16) = 160°$
6

$2(16) - 12$
7 $= 20°$
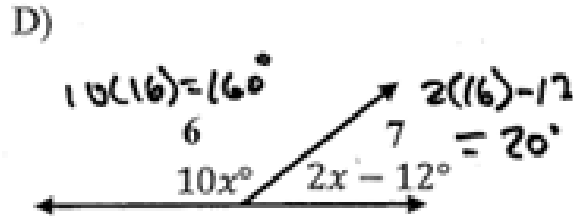
$10x°$ $2x - 12°$

Relationship: **Supplementary**

$$10x + 2x - 12 = 180$$
$$12x - 12 = 180$$
$$+12 \quad +12$$
$$\frac{12x}{12} = \frac{192}{12} \quad \boxed{x = 16}$$

$x = \underline{}$

$\angle 6 = \underline{160°}$ $\angle 7 = \underline{20°}$

E)

$x(20)$
$8 = 60°$

9 $20 + 10$
$= 30°$

$3x°$ $x + 10°$

Relationship: **Complementary**

$$3x + x + 10 = 90$$
$$4x + 10 = 90$$
$$-10 \quad -10$$
$$\frac{4x}{4} = \frac{80}{4} \quad \boxed{x = 20}$$

$x = \underline{20}$

$\angle 8 = \underline{60°}$ $\angle 9 = \underline{30°}$

F)

$10(11) + 2$
$= 112°$

$7(11) - 9$
10 11 $= 68°$
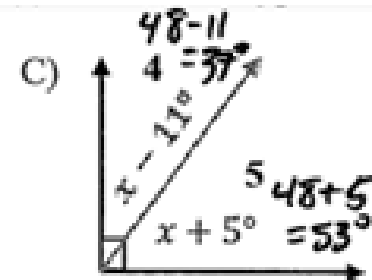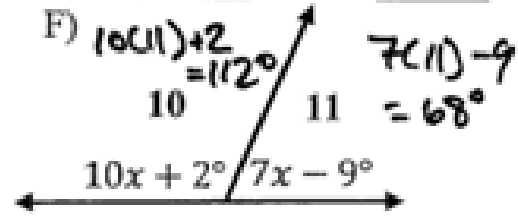
$10x + 2°$ $7x - 9°$

Relationship: **Supplementary**

$$10x + 2 + 7x - 9 = 180$$
$$17x - 7 = 180$$
$$+7 \quad +7$$
$$\frac{17x}{17} = \frac{187}{17} \quad \boxed{x = 11}$$

$x = \underline{11}$

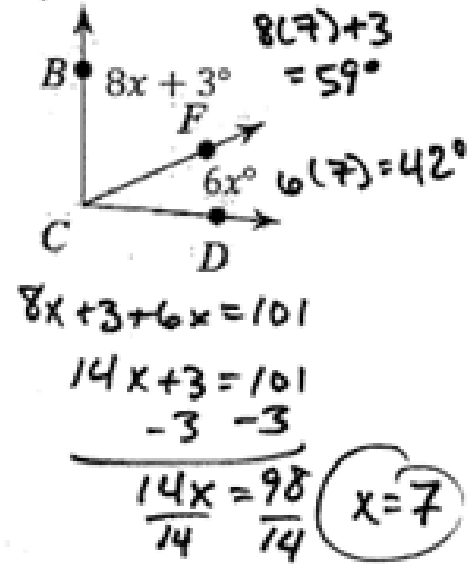$\angle 10 = \underline{112°}$ $\angle 11 = \underline{68°}$

3) Write and solve an equation to find the value of x using the information given. Then find the missing angle(s). **Make sure you pay close attention to what the angles are equal to.**
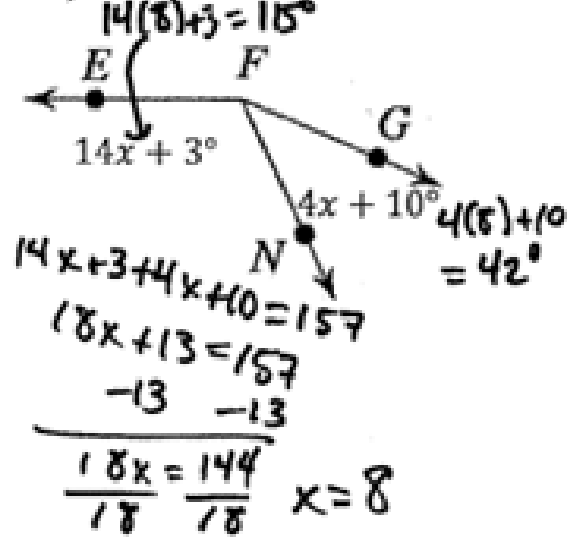
A) $\angle CDE = 128°$

$7(8) = 56$

$7x + 9x = 128$

$16x = 128$

$\dfrac{16x}{16} = \dfrac{128}{16}$

$\boxed{x = 8}$

E $7x°$ W D $9x°$ C

$9(8) = 72°$

$x = \underline{\ 8\ }$ $\angle EDW = \underline{56°}$

$\angle WDC = \underline{72°}$

E) $\angle BCD = 101°$

B $8x + 3°$ $8(7) + 3 = 59°$

F $6x°$ $6(7) = 42°$

C D

$8x + 3 + 6x = 101$

$14x + 3 = 101$

$-3 \quad -3$

$\dfrac{14x}{14} = \dfrac{98}{14}$ $\boxed{x = 7}$

$x = \underline{\ 7\ }$ $\angle BCF = \underline{59°}$

$\angle DCF = \underline{42°}$

F) $\angle GFE = 157°$

$14(8) + 3 = 115°$

E F G

$14x + 3°$

$4x + 10°$ $4(8) + 10 = 42°$

N

$14x + 3 + 4x + 10 = 157$

$18x + 13 = 157$

$-13 \quad -13$

$\dfrac{18x}{18} = \dfrac{144}{18}$ $x = 8$

$x = \underline{\ 8\ }$ $\angle EFN = \underline{115°}$

$\angle GFN = \underline{42°}$