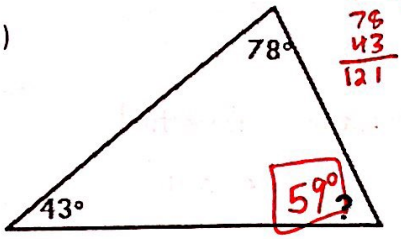
Angles of Triangles: Notes + Review

Interior Angles of Triangles: The sum is always 180°!

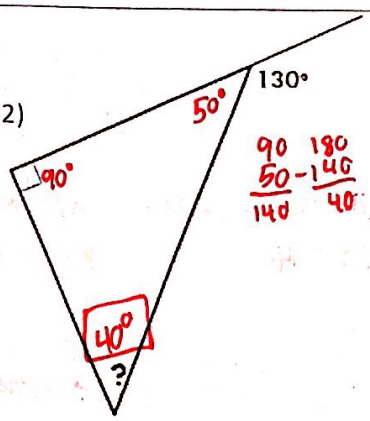
Examples:

1)



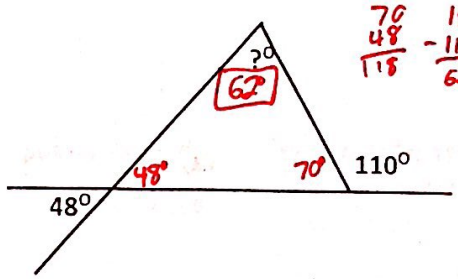
$78 + 43 = 121$; $180 - 121 = 59$

2)



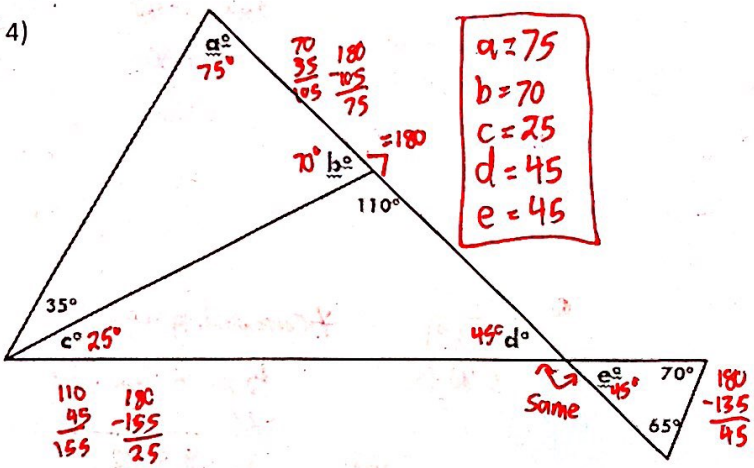
$90 + 50 = 140$; $180 - 140 = 40$

3)



$70 + 48 = 118$; $180 - 118 = 62$

4)



$70 + 35 = 105$; $180 - 105 = 75$

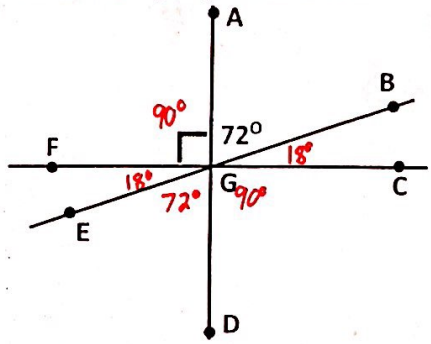
$=180$

$110 + 45 = 155$; $180 - 155 = 25$

$180 - 135 = 45$

a = 75
b = 70
c = 25
d = 45
e = 45

5) Fill in the missing angle measures.



For 6-12, use the diagram from #5.

6) $\angle AGE$ is:

A) Acute
B) Right
C) Obtuse
D) Straight

7) $\angle FGE$ and $\angle BGC$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

8) $\angle AGB$ and $\angle BGC$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

9) $\angle DGC$ and $\angle DGE$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

10) $\angle DGE$ and $\angle DGB$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

11) $\angle AGE$ and $\angle BGD$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

12) $\angle FGE$ and $\angle AGB$ are:

A) Vertical
B) Complementary
C) Supplementary
D) None of the above

18 + 72 = 90! Even though they are not adjacent!

13) Identify a pair of complementary angles from the diagram in #5 that was not already used in #6-12.

∠FGE + ∠DGE

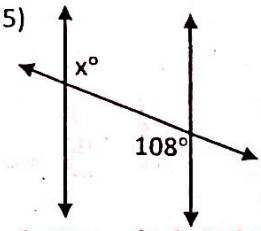
14) Identify a pair of supplementary angles from the diagram in #5 that was not already used in #6-12.

Many options; one is ∠FGB + ∠BGC

another is ∠FGD + ∠CGD

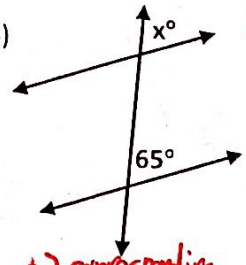
For 15-19, a) Identify which type of angle pair is marked, and b) Find the missing angle measure. You may assume the lines are parallel in each problem.

15)



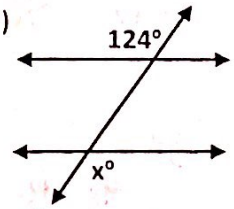
a) alternate interior
b) x = 108

16)



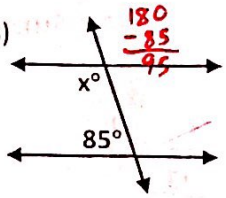
a) corresponding
b) x = 65

17)



a) alternate exterior
b) x = 124

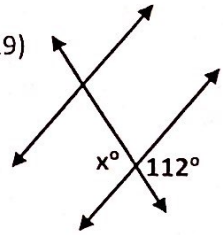
18)



180
−85
95

a) same-side interior
b) x = 95

19)



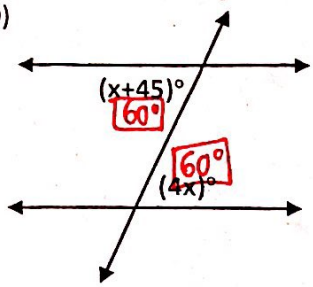
a) vertical
b) x = 112

Algebra Section

For each problem, set up an equation and solve for the variable. Then plug the variable back in to find each angle measure.

20)

* Alt. Interior = equal

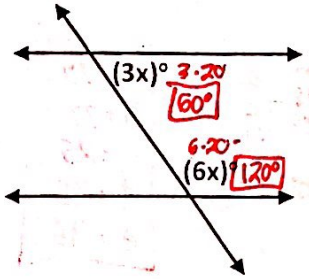


$x+45=4x$
$-x \quad -x$
$\frac{45}{3}=\frac{3x}{3}$
$15=x$

$4\cdot 15=60$
$15+45=60$

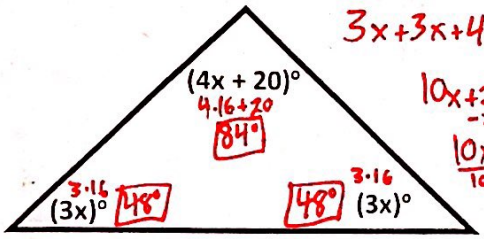
21)

* Same-side interior = supplementary



$3x+6x=180$
$9x=180$
$x=20$

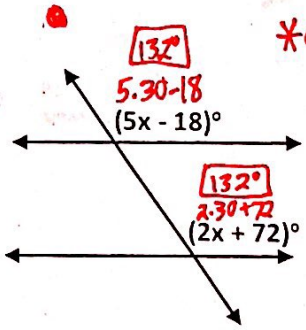
22)



$3x+3x+4x+20=180$
$10x+20=180$
$-20 \quad -20$
$\frac{10x}{10}=\frac{160}{10}$
$x=160$

23)

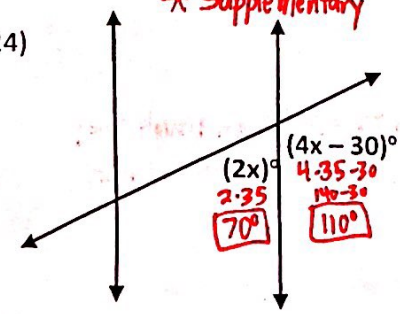
* Corresponding = equal



$5x-18=2x+72$
$-2x \quad -2x$
$3x-18=72$
$+18 \quad +18$
$3x=90$
$x=30$

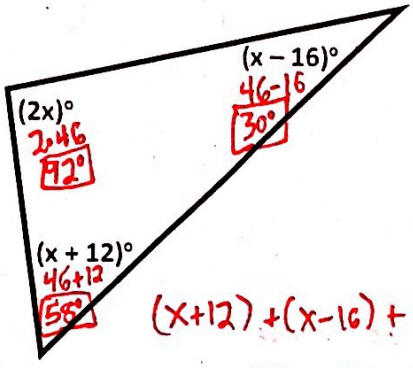
24)

* Supplementary



$2x+4x-30=180$
$6x-30=180$
$+30 \quad +30$
$\frac{6x}{6}=\frac{210}{6}$ $x=35$

25)



$(x+12)+(x-16)+(2x)=180$
$4x-4=180$
$+4 \quad +4$
$\frac{4x}{4}=\frac{184}{4}$ $x=46$