Name Schlansky
Mr. Schlansky

Date _____
Geometry

Triangles/Parallel Lines Review Sheet

1. In $\triangle ABC$, $m\angle A = 3x+1$, $m\angle B = 4x-17$, and $m\angle C = 5x-20$. Which type of triangle is $\triangle ABC$?

1) right
2) scalene
3) isosceles
4) equilateral

$3x+1+4x-17+5x-20=180$
$12x-36=180$
$+36 \quad +36$
$\frac{12x}{12}=\frac{216}{12}$
$x=18$

$3(18)+1=55$
$4(18)-17=55$
$5(18)-20=70$

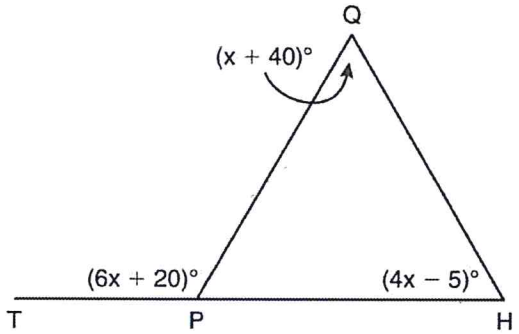
2. Triangle PQR has angles that are in the ratio 2:3:5. Which type of triangle is $\triangle PQR$?

1) acute
2) isosceles
3) obtuse
4) right

$2x+3x+5x=180$
$\frac{10x}{10}=\frac{180}{10}$
$x=18$

$2(18)=36$
$3(18)=54$
$5(18)=90$

3. In the diagram below of $\triangle HQP$, side $\overline{HP}$ is extended through P to T, $m\angle QPT = 6x+20$, $m\angle HQP = x+40$, and $m\angle PHQ = 4x-5$. Find $m\angle QPT$.



(Not drawn to scale)

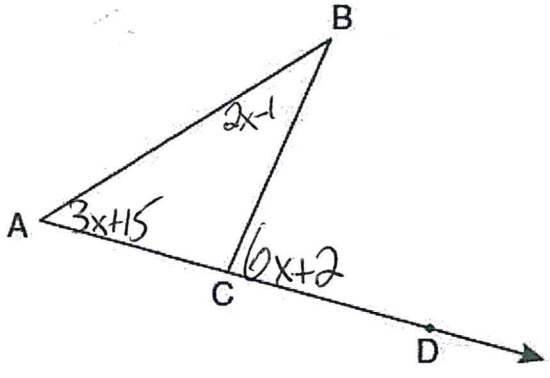
$x+40+4x-5=6x+20$
$5x+35=6x+20$
$-5x \quad -5x$
$35=x+20$
$-20 \quad -20$
$15=x$

$\angle QPT=6(15)+20$
$=110°$

the sum of the two interior angles equal the exterior angle

4. In the diagram below, $\triangle ABC$ is shown with $\overline{AC}$ extended through point D.

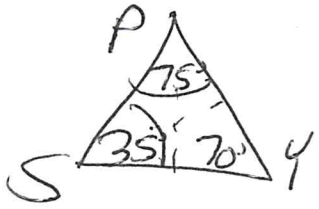
If $m\angle BCD = 6x+2$, $m\angle BAC = 3x+15$, and $m\angle ABC = 2x-1$, what is the value of x?



$3x+15+2x-1=6x+2$
$5x+14=6x+2$
$-5x \quad -5x$
$14=x+2$
$-2 \quad -2$
$12=x$

5. In triangle SPY, $m\angle S = 35°$ and $m\angle Y = 70°$. What is the largest side of the triangle? What is the shortest side of the triangle?

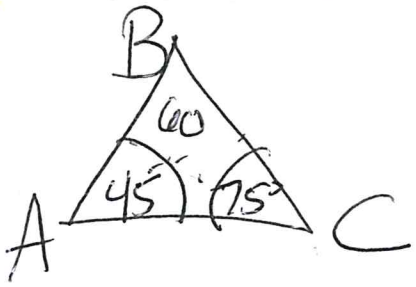
35 + 70 = 105 180 − 105 = 75



Largest: $\overline{SY}$
Smallest: $\overline{PY}$

6. In ΔABC, $m\angle A = 45°$ and $m\angle B = 60°$. What is the largest side of ΔABC ? What is the smallest side of ΔABC?

Largest: $\overline{AB}$
Smallest: $\overline{BC}$



60 + 45 = 105 180 − 105 = 75

7. Which set of numbers represents the lengths of the sides of a triangle?

1) {5, 18, 13} $5+13>18$ ✗
2) {6, 17, 22} $6+17>22$ ✓
3) {16, 24, 7} $7+16>24$ ✗
4) {26, 8, 15} $8+15>26$ ✗

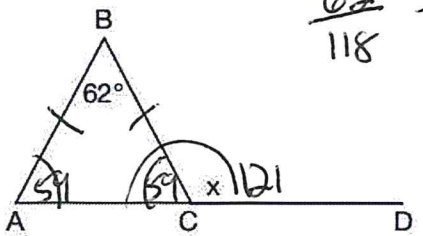
8. Which of the following ~~cannot~~ make up the three sides of a triangle?

1) {3,9,7} $3+7>9$ ✓
2) {2,7,5} $2+5>7$ ✗
3) {8,12,15} $8+12>15$ ✓
4) {9,3,7} $3+7>9$ ✓

9. Given ΔABC with $m\angle B = 62°$ and side $\overline{AC}$ extended to D, as shown below.

Which value of x makes $\overline{AB} \cong \overline{CB}$?

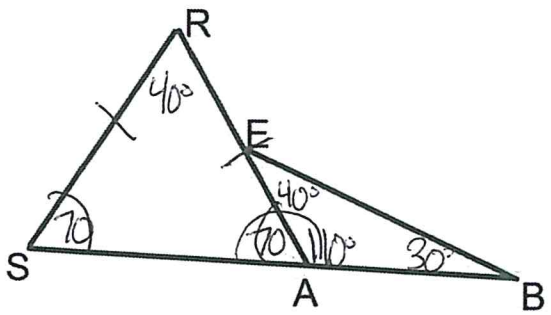
1) 59°
2) 62°
3) 118°
4) 121°



180 − 62 = 118 $\frac{118}{2} = 59$

180 − 59 = 121

10. In the diagram below, $\overline{SR} \cong \overline{RA}$, $m\angle SRA = 40$, and $m\angle ABE = 30$. Find $m\angle BEA$.

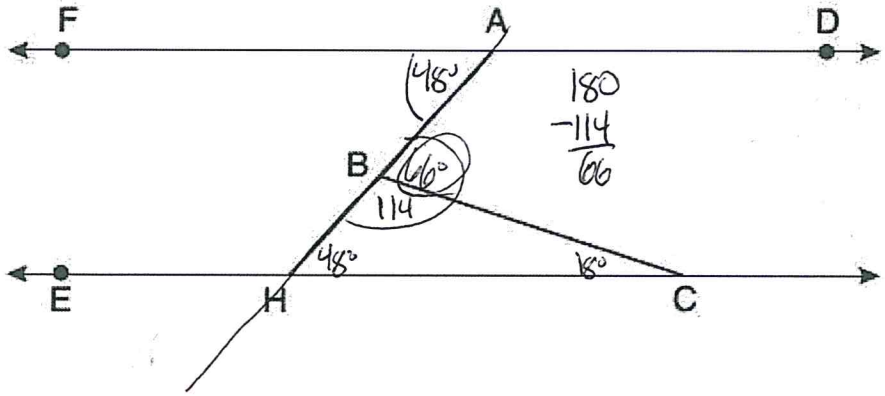


180 − 40 = 140 ; 140 ÷ 2 = 70 ; 180 − 70 = 110

110 + 30 = 140 ; 180 − 140 = 40

$\angle BEA = 40°$

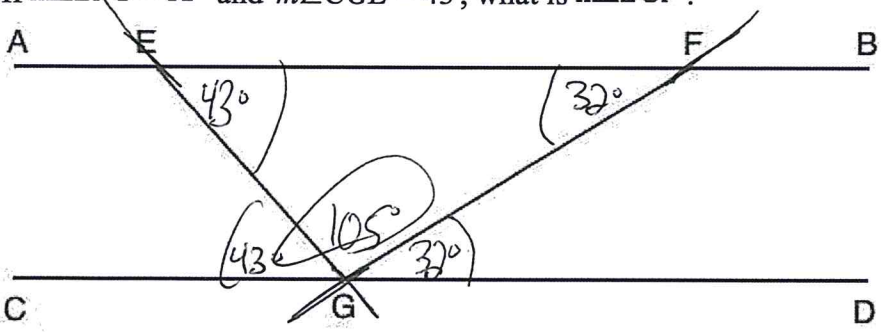
11. In the diagram below, $\overline{FAD} \parallel \overline{EHC}$, and $\overline{ABH}$ and $\overline{BC}$ are drawn. If $m\angle FAB = 48°$ and $m\angle ECB = 18°$, what is $m\angle ABC$?



48 + 18 = 66 ; 180 − 66 = 114

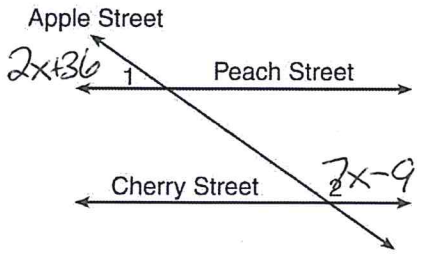
$\angle ABC = 66°$

12. In the diagram below, $\overline{AEFB} \parallel \overline{CGD}$, and $\overline{GE}$ and $\overline{GF}$ are drawn. If $m\angle EFG = 32°$ and $m\angle CGE = 43$, what is $m\angle EGF$?



43 + 32 = 75 ; 180 − 75 = 105

13. Peach Street and Cherry Street are parallel. Apple Street intersects them, as shown in the diagram below.



If $m\angle 1 = 2x + 36$ and $m\angle 2 = 7x - 9$, what is $m\angle 1$?

1) 9
2) 17
3) 54
4) 70

$2x+36+7x-9=180$

$9x+27=180$

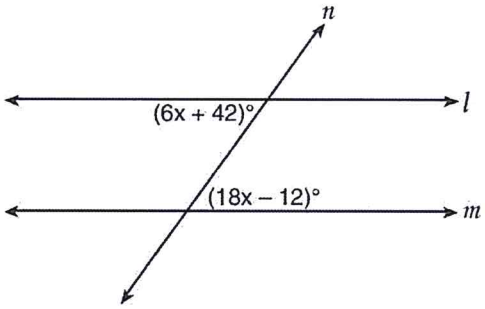
$-27 \quad -27$

$\frac{9x=153}{9} \quad \frac{}{9}$

$x=17$

$\angle 1 = 2(17)+36 = 70$

14. Line n intersects lines l and m, forming the angles shown in the diagram below.



Which value of x would prove $l \parallel m$?

1) 2.5
2) 4.5
3) 6.25
4) 8.75

$6x+42 = 18x-12$

$-6x \quad -6x$

$42 = 12x-12$

$+12 \quad +12$

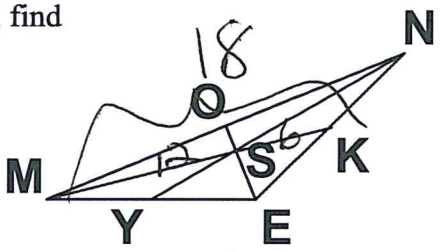
$\frac{54}{12} = \frac{12x}{12}$

$4.5 = x$

15. In the given triangle, all three medians are drawn in. If $\overline{MS} = 12$, find

c) $\overline{SK}$ 6

d) $\overline{MK}$ 18



16. In the given triangle, all three medians are drawn in. If $\overline{OS} = 9$, find

c) $\overline{ES}$ 18

d) $\overline{OE}$ 27