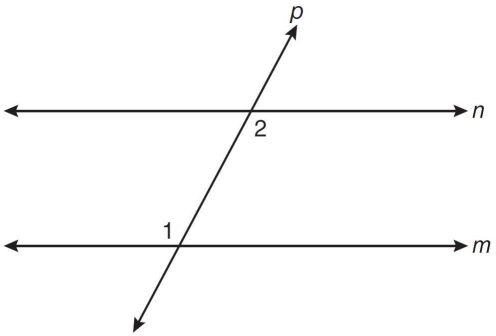
Name _____ Date _____
Mr. Schlansky Geometry

Parallel Lines Cut By a Transversal with Algebra

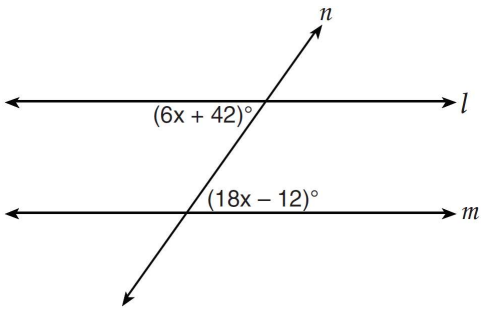
1. In the diagram below, line *p* intersects line *m* and line *n*.



If $m\angle 1 = 7x$ and $m\angle 2 = 5x + 30$, lines *m* and *n* are parallel when *x* equals

1) 12.5
2) 15
3) 87.5
4) 105

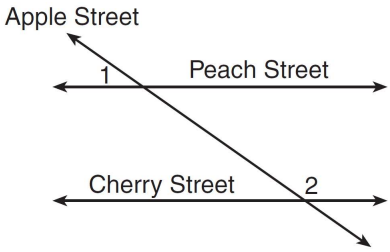
2. Line *n* intersects lines *l* and *m*, forming the angles shown in the diagram below.



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

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

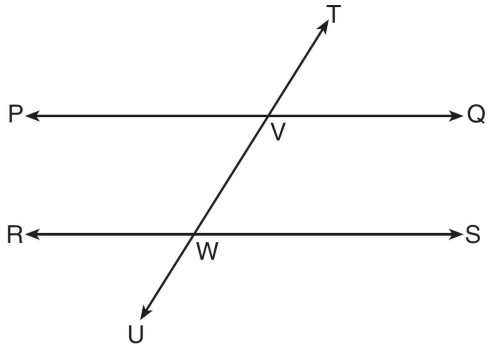
3. Peach Street and Cherry Street are parallel. Apple Street intersects them, as shown in the diagram below.



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

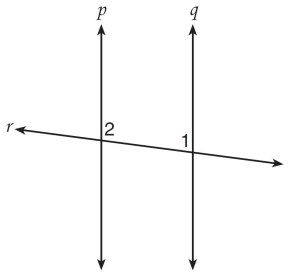
4. In the diagram below, transversal $\overleftrightarrow{TU}$ intersects $\overleftrightarrow{PQ}$ and $\overleftrightarrow{RS}$ at V and W, respectively.



If $m\angle TVQ = 5x - 22$ and $m\angle VWS = 3x + 10$, for which value of x is $\overleftrightarrow{PQ} \parallel \overleftrightarrow{RS}$?

1) 6
2) 16
3) 24
4) 28

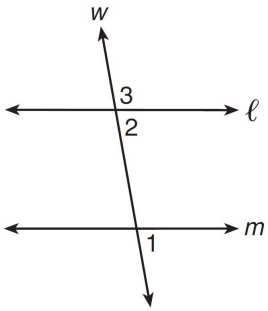
5. Lines p and q are intersected by line r, as shown below.



If $m\angle 1 = 7x - 36$ and $m\angle 2 = 5x + 12$, for which value of x would $p \parallel q$?

1) 17
2) 24
3) 83
4) 97

6. In the diagram below, line ℓ is parallel to line m, and line w is a transversal.



(Not drawn to scale)

If $m\angle 2 = 3x + 17$ and $m\angle 3 = 5x - 21$, what is $m\angle 1$?

1) 19
2) 23
3) 74
4) 86