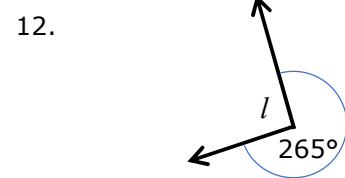
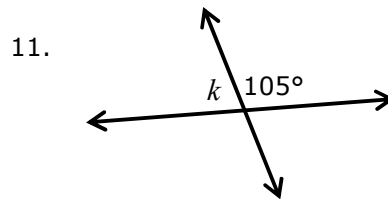
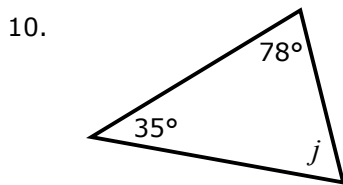
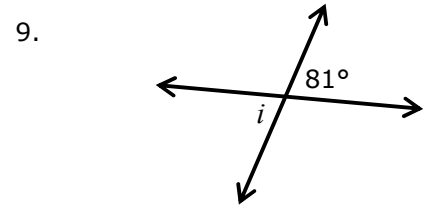
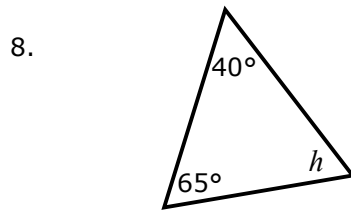
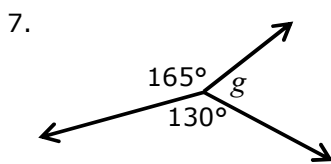
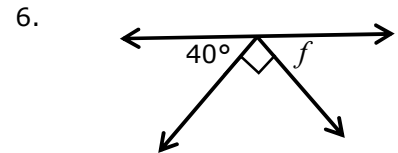
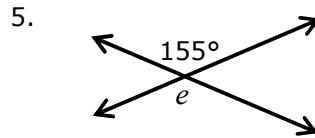
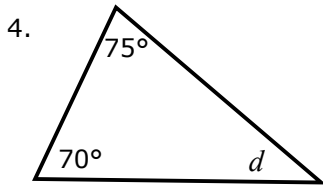
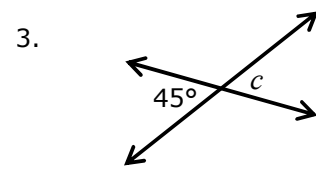
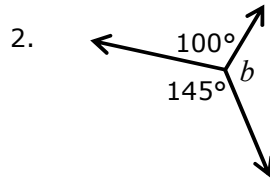
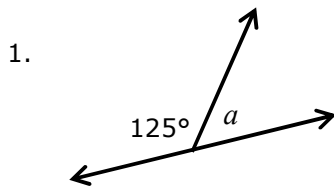
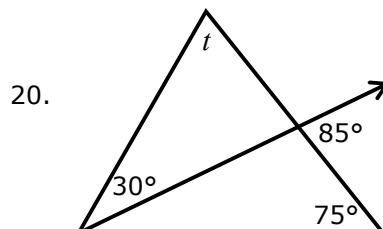
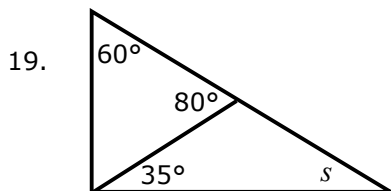
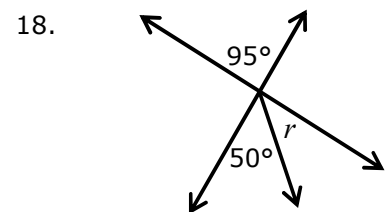
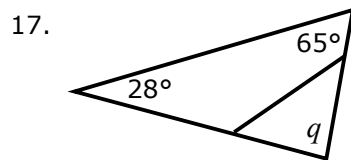
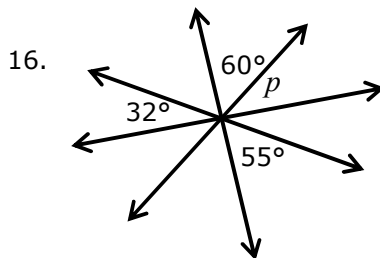
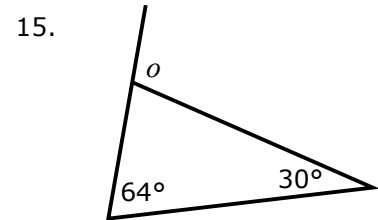
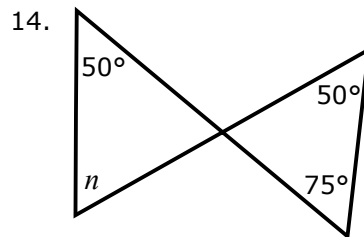
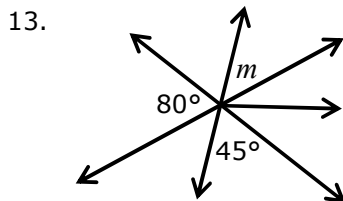


### Basic Geometry #3 (No parallel lines, isosceles or polygons)

One Step Problems: Find the values of the unknown angles, giving the reason.



Harder Problems: Give the values of the unknown angles, giving **all** reasons.



### Answers : Basic Geometry #3 (No parallel lines, isosceles or polygons)

- $a = 180 - 125 = 55^\circ$  Angles on a straight line add up to  $180^\circ$
- $b = 360 - 100 - 145 = 115^\circ$  Angles at a point add up to  $360^\circ$
- $c = 45^\circ$  Vertically opposite angles are equal
- $d = 180 - 75 - 70 = 35^\circ$  Angles in a triangle add up to  $180^\circ$
- $e = 155^\circ$  Vertically opposite angles are equal
- $f = 180 - 40 - 90 = 50^\circ$  Angles on a straight line add up to  $180^\circ$
- $g = 360 - 165 - 130 = 65^\circ$  Angles at a point add up to  $360^\circ$
- $h = 180 - 65 - 40 = 75^\circ$  Angles in a triangle add up to  $180^\circ$
- $i = 81^\circ$  Vertically opposite angles are equal
- $j = 180 - 78 - 35 = 67^\circ$  Angles in a triangle add up to  $180^\circ$
- $k = 180 - 105 = 75^\circ$  Angles on a straight line add up to  $180^\circ$
- $l = 360 - 265 = 95^\circ$  Angles at a point add up to  $360^\circ$
- 45 between  $m$  and 80  
 $m = 180 - 80 - 45 = 55^\circ$  Vertically opposite angles are equal  
Angles on a straight line add up to  $180^\circ$
- $180 - 75 - 50 = 55$  Angles in a triangle add up to  $180^\circ$   
from right to left triangle Vertically opposite angles are equal  
 $n = 180 - 50 - 66 = 75^\circ$  Angles in a triangle add up to  $180^\circ$
- $180 - 64 - 30 = 86$  Angles in a triangle add up to  $180^\circ$   
 $o = 180 - 86 = 94^\circ$  Angles on a straight line add up to  $180^\circ$
- angle between 32 and 60 =  $55^\circ$  Vertically opposite angles are equal  
 $p = 180 - 32 - 55 - 60 = 33^\circ$  Angles on a straight line add up to  $180^\circ$   
*or move the 32 across as vertically opposite, and then 180 on a line*
- $q = 180 - 65 - 28 = 87$  Angles in a triangle add up to  $180^\circ$
- $r + 50 = 95$  Vertically opposite angles are equal  
 $r = 45^\circ$
- $180 - 80 = 100$  Angles on a straight line add up to  $180^\circ$   
 $s = 180 - 100 - 35 = 45^\circ$  Angles in a triangle add up to  $180^\circ$
- right side top triangle = 85 Vertically opposite angles are equal

$$t = 180 - 30 - 85 = \mathbf{65^\circ}$$

Angles in a triangle add up to  $180^\circ$