

1.) The measure of the complement of an angle is 20 more than the measure of the angle. Find the measure of the angle.

ANGLE =  $x$

COMP =  $x + 20$

$x + x + 20 = 90$

$2x = 70$

$x = 35$

ANGLE =  $35^\circ$

2.) The measure of the supplement of an angle is 60 more than measure of the angle. Find the measure of both the angle and its complement.

ANGLE =  $x$

SUPP =  $x + 60$

$x + x + 60 = 180$

$2x = 120$

$x = 60$

ANGLE =  $60^\circ$   
COMP =  $30^\circ$

$90 - 60 = 30$

3.) The complement of an angle is five times the measure of the angle. Find the measure of the supplement of the angle.

ANGLE =  $x$

COMP =  $5x$

$x + 5x = 90$

$6x = 90$

$x = 15$

SUPP =  $165^\circ$

$180 - 15 = 165$

4.) The measure of the supplement of an angle is twenty more than three times the measure of the angle. Find the complement and supplement of the angle.

ANGLE =  $x$

SUPP =  $3x + 20$

$x + 3x + 20 = 180$

$4x = 160$

$x = 40$

COMP =  $50^\circ$   
SUPP =  $140^\circ$

$90 - 40 = 50$

$180 - 40 = 140$

5.)  $\angle 3$  is supplementary to  $\angle 4$ . If  $\angle 3$  and  $\angle 4$  are in a ratio of 3:2, find the complement of the smaller angle.

3:2  
↓ ↓  
 $3x + 2x = 180$   
 $5x = 180$   
 $x = 36$

FIRST ANGLE  $\rightarrow 3(36) = 108^\circ$

SECOND ANGLE  $\rightarrow 2(36) = 72^\circ$   
SMALLER

COMP =  $18^\circ$

$90 - 72 = 18$

6.)  $\angle 1 = (4w - 10)^\circ$  and  $\angle 2 = (129 - 8w)^\circ$ . If  $\angle 1$  is complementary to  $\angle 2$ , find the measure of  $\angle 1$ .

$4w - 10 + 129 - 8w = 90$

$-4w = -29$

$w = 7.25$

$m\angle 1 = 4(7.25) - 10$

$m\angle 1 = 19^\circ$

7.)  $\angle A = (6x + 29)^\circ$  and  $\angle B = (13x + 18)^\circ$ . If  $\angle A$  is supplementary to  $\angle B$ , find the measure of both angles.

$6x + 29 + 13x + 18 = 180$

$19x = 133$

$x = 7$

$m\angle A = 6(7) + 29$

$m\angle A = 71^\circ$

$m\angle B = 13(7) + 18$

$m\angle B = 109^\circ$