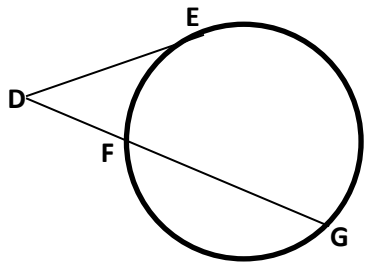
POWER OF POINT RELAY

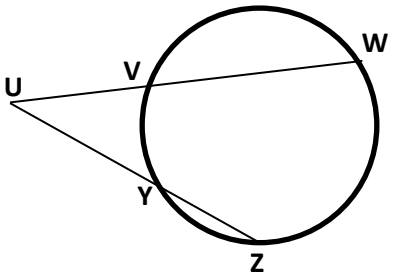
2-1 DE is tangent to the circle. DE = 10 and FG = 15.

Compute DF.



2-2 T = TNYWR. UV = 3; VW = 12; UY = T.

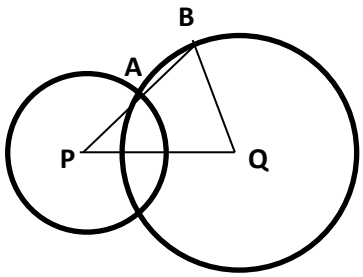
Compute YZ.



2-3 T=TNYWR

Circle P of radius 3 and circle Q of radius T intersect at A.

PQ = 6. Compute AB.



ANSWERS

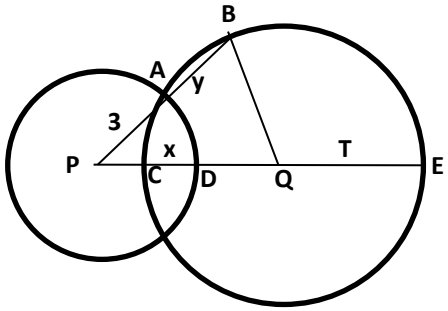
2-1 **5** Use the formula: $PB^2 = PC * PD$

Let x = DF. $DE^2 = DF*DG$ or $10^2 = x(x + 15)$ $x^2 + 15x – 100 = 0$ $(x + 20)(x – 5) = 0$, x = DF = **5**

2-2 **4** Use the formula: PA * PB = PC * PD

Let x = YZ. UV*UW = UY*UZ or 3*15 = T (T + x). $x = (45 – T^2)/T$. Since T = 5, x = YZ = 20/5 = **4**

2-3 Let CD = x and AB = y. Then PC = 3 – x



PC + CQ = PQ = 6, then (3 – x) + T = 6, or x = T – 3. Also, PE = 6 + T.

From Power of Point on P: PA * PB = PC * PE

$3(3 + y) = (3 – x)(6 + T)$.

$9 + 3y = (6 – T)(6 + T)$. $y = (36 – T^2 – 9)/3$.

With T = 4, y = AB = (27 – 16)/3 **= 11/3**

11/3