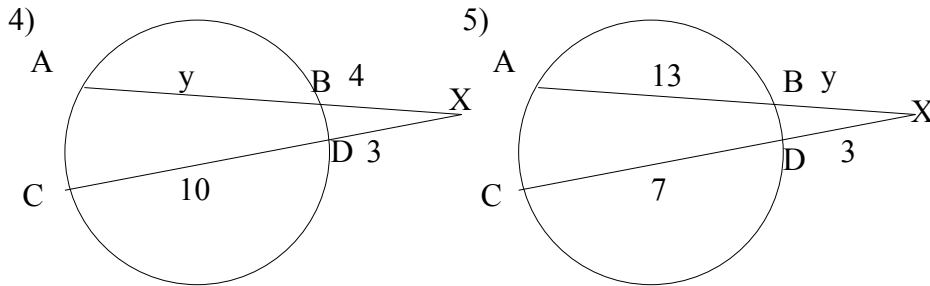
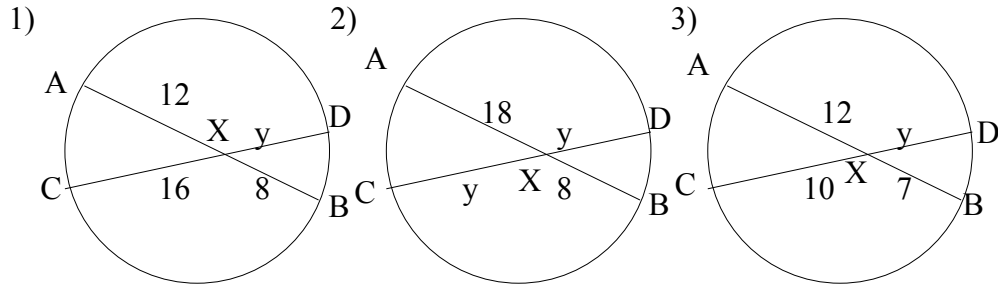
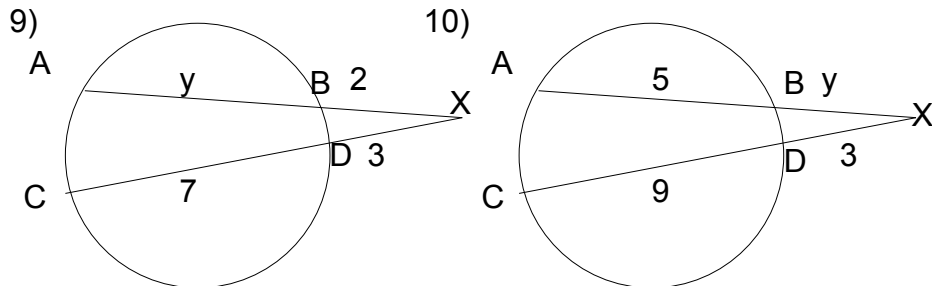
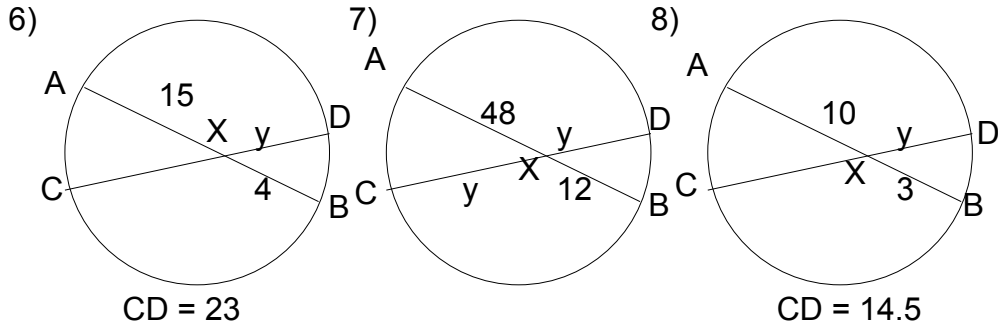


Intersecting Chords Theorem

Find the value of y in each of the following (lengths can be assumed to be in cm)



Find the value of y in each of the following



$$1) \quad y \times 16 = 12 \times 8 \Rightarrow y = \frac{12 \times 8}{16} = 6 \text{ cm}$$

$$2) \quad y \times y = 18 \times 8 \Rightarrow y^2 = 144 \Rightarrow y = 12 \text{ cm}$$

$$3) \quad y \times 10 = 12 \times 7 \Rightarrow y = \frac{12 \times 7}{10} = 8.4 \text{ cm}$$

$$4) \quad (y+4) \times 4 = 13 \times 3 \Rightarrow 4y+16=39 \Rightarrow y=5.75 \text{ cm}$$

$$5) \quad \begin{aligned} (y+13) \times y &= 10 \times 3 \Rightarrow y^2 + 13y = 30 \\ &\Rightarrow y^2 + 13y - 30 = 0 \\ &\Rightarrow (y+15)(y-2) = 0 \\ &\Rightarrow y = -15 \text{ (not possible) or } y = 2 \text{ cm} \end{aligned}$$

$$6) \quad \begin{aligned} (23-y) \times y &= 15 \times 4 \Rightarrow 23y - y^2 = 60 \\ &\Rightarrow 0 = y^2 - 23y + 60 \\ &\Rightarrow (y-3)(y-20) = 0 \\ &\Rightarrow y = 3 \text{ cm or } y = 20 \text{ cm} \end{aligned}$$

$$7) \quad y \times y = 48 \times 12 \Rightarrow y^2 = 576 \Rightarrow y = 24 \text{ cm}$$

$$8) \quad \begin{aligned} (14.5-y) \times y &= 10 \times 3 \Rightarrow 14.5y - y^2 = 30 \\ &\Rightarrow 29y - 2y^2 = 60 \\ &\Rightarrow 0 = 2y^2 - 29y + 60 \\ &\Rightarrow (2y-5)(y-12) = 0 \\ &\Rightarrow y = 2.5 \text{ cm or } y = 12 \text{ cm} \end{aligned}$$

$$9) \quad (y+2) \times 2 = 10 \times 3 \Rightarrow 2y+4=30 \Rightarrow y=13 \text{ cm}$$

$$10) \quad \begin{aligned} (y+5) \times y &= 12 \times 3 \Rightarrow y^2 + 5y = 36 \\ &\Rightarrow y^2 + 5y - 36 = 0 \\ &\Rightarrow (y+9)(y-4) = 0 \\ &\Rightarrow y = -9 \text{ (not possible) or } y = 4 \text{ cm} \end{aligned}$$