Circles - Chords Past Paper Questions – ANSWERS

1) $c^2 = a^2 + b^2$
$24^2 = x^2 + 11^2$
$x^2 = 576 – 121$
$x^2 = 455$
$x = \sqrt{455} = 21{\cdot}3\text{cm}$

AB = 21·3 × 2 = 42·6cm

2) $c^2 = a^2 + b^2$
$15^2 = x^2 + 9^2$
$x^2 = 225 – 81$
$x^2 = 144$
$x = \sqrt{144} = 12\text{cm}$

Width = 12 + 15 = 27cm

3a) $c^2 = a^2 + b^2$
$2{\cdot}1^2 = d^2 + 1{\cdot}3^2$
$d^2 = 4{\cdot}41 – 1{\cdot}69$
$d^2 = 2{\cdot}72$
$d = \sqrt{2{\cdot}72} = 1{\cdot}65\text{m}$

x = 2 × 1·65 = 3·3m

b) 4·2 - 3·4 = 0·8m

4) $c^2 = a^2 + b^2$
$500^2 = x^2 + 300^2$
$x^2 = 250\,000 – 90\,000$
$x^2 = 160\,000$
$x = \sqrt{160\,000} = 400\text{mm}$

Width = 400 × 2 = 800mm

5) $c^2 = a^2 + b^2$
$1{\cdot}7^2 = x^2 + 0{\cdot}9^2$
$x^2 = 2{\cdot}89 – 0{\cdot}81$
$x^2 = 2{\cdot}08$
$x = \sqrt{2{\cdot}08} = 1{\cdot}44\text{m}$

Height = 1·44 + 1·7 = 3·14m

6) $c^2 = a^2 + b^2$
$1{\cdot}95^2 = x^2 + 1{\cdot}25^2$
$x^2 = 3{\cdot}8025 – 1{\cdot}5625$
$x^2 = 2{\cdot}24$
$x = \sqrt{2{\cdot}24} = 1{\cdot}5\text{m}$

Height = 1·5 + 1·95 = 3·45m

7) $c^2 = a^2 + b^2$
$10^2 = x^2 + 6^2$
$x^2 = 100 – 36$
$x^2 = 64$
$x = \sqrt{64} = 8\text{cm}$

Distance = 8 × 2 = 16cm

8) $c^2 = a^2 + b^2$
$24^2 = x^2 + 15^2$
$x^2 = 576 – 225$
$x^2 = 351$
$x = \sqrt{351} = 18{\cdot}7\text{cm}$

H = 24+24+18·7+18·7 = 85·4cm

9) $c^2 = a^2 + b^2$
$2{\cdot}5^2 = x^2 + 1{\cdot}5^2$
$x^2 = 6{\cdot}25 – 2{\cdot}25$
$x^2 = 4$
$x = \sqrt{4} = 2\text{m}$

d = 2·5 – 2 = 0·5m

10) $c^2 = a^2 + b^2$
$110^2 = x^2 + 70^2$
$x^2 = 12100 – 4900$
$x^2 = 7200$
$x = \sqrt{7200} = 84{\cdot}9\text{mm}$

d = 110 - 84·9 = 25·1mm

11) $c^2 = a^2 + b^2$
$1{\cdot}9^2 = x^2 + 1{\cdot}1^2$
$x^2 = 3{\cdot}61 - 1{\cdot}21$
$x^2 = 2{\cdot}4$
$x = \sqrt{2{\cdot}4} = 1{\cdot}55\text{m}$

d = 1·9 - 1·55 = 0·35m

12a) $c^2 = a^2 + b^2$
$30^2 = x^2 + 27{\cdot}5^2$
$x^2 = 900 – 756{\cdot}25$
$x^2 = 143{\cdot}75$
$x = \sqrt{143{\cdot}75} = 12{\cdot}0\text{cm}$

d = 30 – 12 = 18cm

b) 60 – 18 = 42cm