

INTERSECTING CHORDS AND SECANTS

GRADE 7

Examination Practice Questions

You should have:

A ruler, protractor, compasses, a pen, pencil, eraser, calculator.
For some questions, you may need tracing paper.

Instructions

- Use **black** ink or ball-point pen.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**

Information

- The marks for each question are shown in brackets.
- Use the number of marks for each question as a guide as to how much time to spend on each question. As a rough guide, you can multiply the number of marks by 1.2 to see how many minutes you should spend on a question.
- Questions been carefully compiled from or modelled on a variety of past papers and will generally get more challenging as the document progresses. Some of the later questions will go beyond the core grade level for this topic.

Advice

- Read each question carefully before you start to answer it.
- Don't forget to have fun.
- Check your answers at the end.

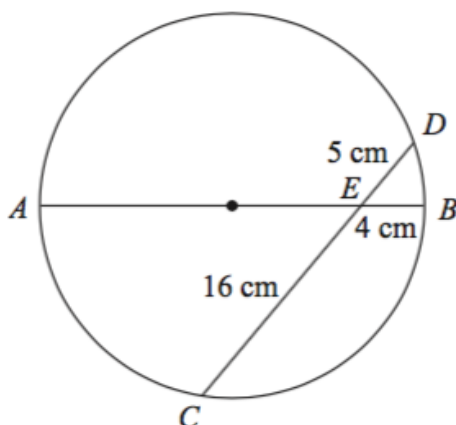


Diagram **NOT**
accurately drawn

AB is a diameter of a circle.
CD is a chord of the circle.
AB and CD intersect at E.
BE = 4 cm, CE = 16 cm and DE = 5 cm.

Calculate the length of AE.

.....

(2 marks)

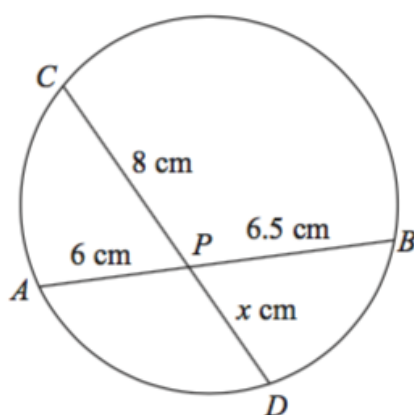


Diagram **NOT**
accurately drawn

APB and CPD are chords of a circle.

AP = 6 cm, PB = 6.5 cm, CP = 8 cm, PD = x cm

Work out the value of x .

.....

(2 marks)

Q3.

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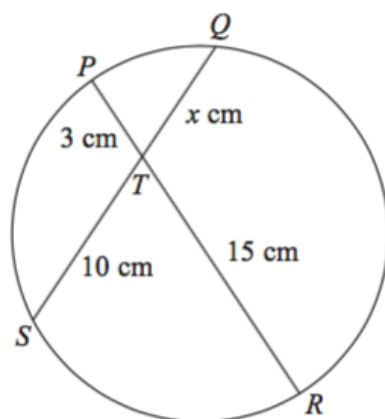


Diagram **NOT**
accurately drawn

$PT = 3 \text{ cm}$.
 $ST = 10 \text{ cm}$.
 $RT = 15 \text{ cm}$.
 $QT = x \text{ cm}$.

Calculate the value of x .

.....
(2 marks)

Q4.

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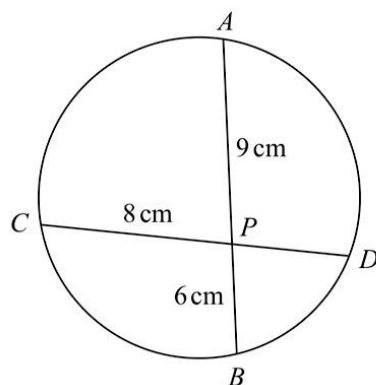


Diagram **NOT**
accurately drawn

APB and CPD are chords of a circle.

$AP = 9 \text{ cm}$ $PB = 6 \text{ cm}$ $CP = 8 \text{ cm}$

Calculate the length of PD .

.....
(2 marks)

P , R , Q and S are four points on a circle.

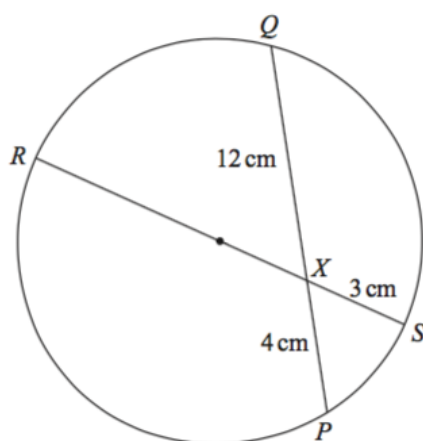


Diagram **NOT**
accurately drawn

RXS is a diameter of the circle.

PXQ is a chord of the circle.

$PX = 4$ cm, $XQ = 12$ cm, $SX = 3$ cm.

Work out the radius of the circle.

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(3 marks)

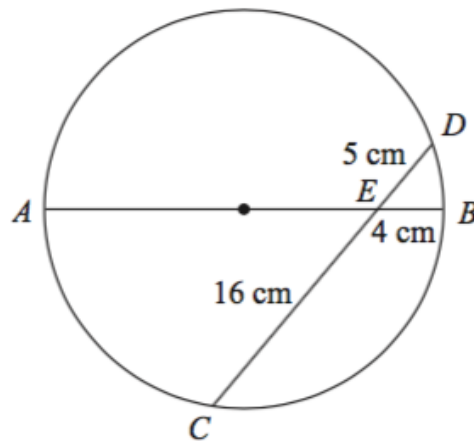


Diagram **NOT**
accurately drawn

AB is a diameter of a circle.

CD is a chord of the circle.

AB and CD intersect at E .

$BE = 4\text{ cm}$, $CE = 16\text{ cm}$ and $DE = 5\text{ cm}$.

It can be shown that $AE = 20\text{ cm}$.

Find the radius of the circle.

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(3 marks)

AEC and DEB are chords of a circle.

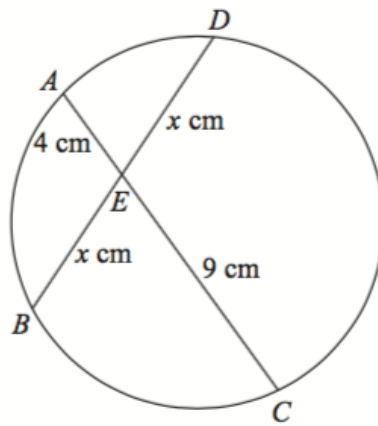


Diagram **NOT**
accurately drawn

$$AE = 4\text{ cm.}$$

$$CE = 9\text{ cm.}$$

$$DE = BE = x\text{ cm.}$$

Calculate the value of x .

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(2 marks)

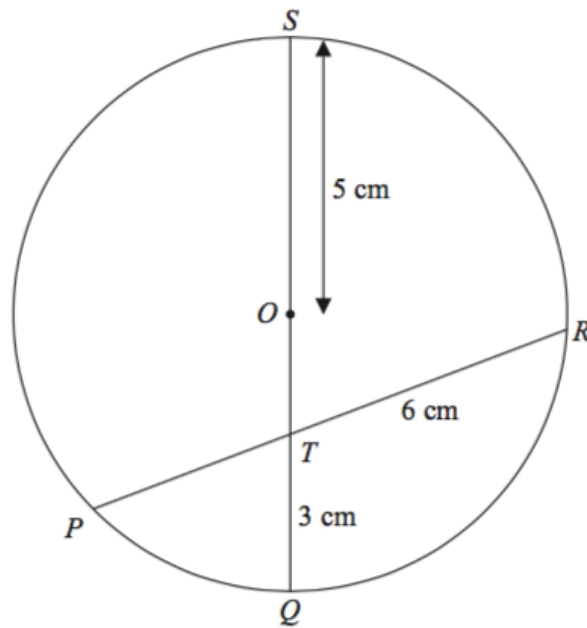


Diagram **NOT**
accurately drawn

P , Q , R and S are points on a circle, centre O .

QS is a diameter of the circle.

QS and PR intersect at the point T .

$OS = 5\text{ cm}$, $QT = 3\text{ cm}$ and $TR = 6\text{ cm}$.

Work out the length of PT .

.....

(2 marks)

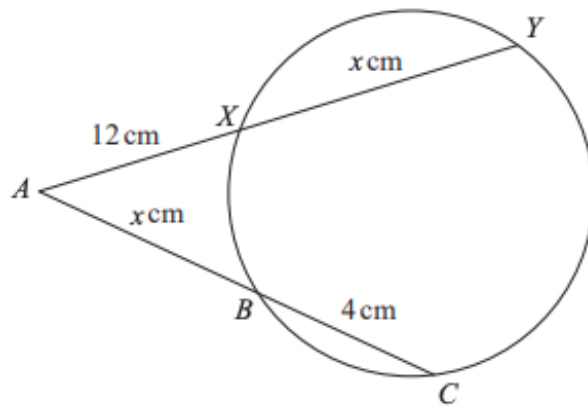


Diagram **NOT**
accurately drawn

The points B , C , Y and X lie on a circle.

AXY and ABC are straight lines.

$AX = 12 \text{ cm}$ $XY = x \text{ cm}$ $AB = x \text{ cm}$ $BC = 4 \text{ cm}$

Find the length of AC .

Give your answer correct to 3 significant figures.

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(4 marks)

A, B, D and E are points on a circle.
 ABC and EDC are straight lines.

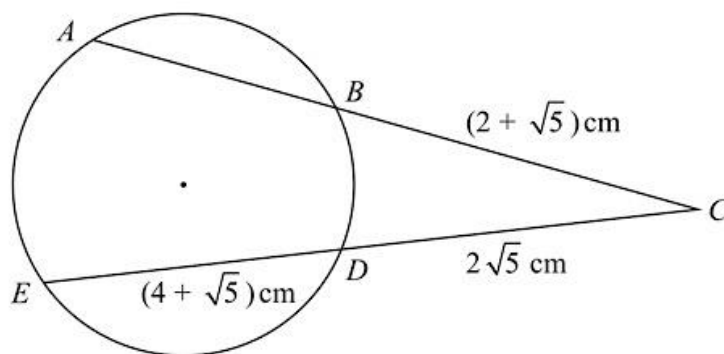


Diagram **NOT**
 accurately drawn

$$BC = (2 + \sqrt{5}) \text{ cm}$$

$$ED = (4 + \sqrt{5}) \text{ cm}$$

$$DC = 2\sqrt{5} \text{ cm}$$

Show that the length of AB is $(p\sqrt{5} + q)$ cm, where p and q are integers whose values are to be found.

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(5 marks)

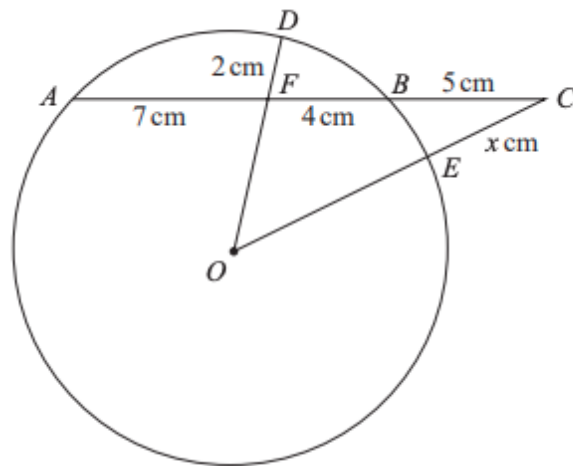
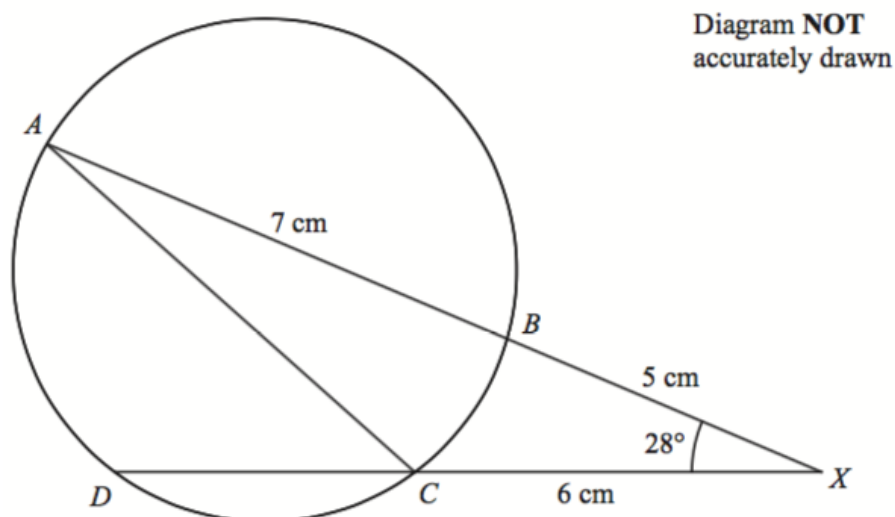


Diagram **NOT**
accurately drawn

A , D , B and E are points on a circle, centre O .
 $AFBC$, OEC and OFD are straight lines.

$AF = 7$ cm, $FB = 4$ cm, $BC = 5$ cm, $FD = 2$ cm and $CE = x$ cm.

Work out the value of x .



A , B , C and D are four points on a circle.

ABX and DCX are straight lines.

$AB = 7$ cm, $BX = 5$ cm and $CX = 6$ cm.

Angle $BXC = 28^\circ$

Calculate the length of DC .

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(3 marks)

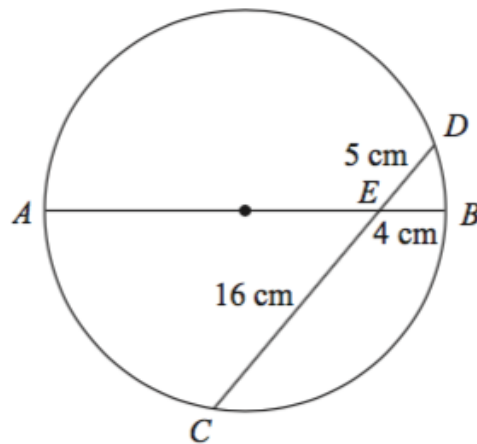


Diagram **NOT**
accurately drawn

AB is a diameter of a circle.

CD is a chord of the circle.

AB and CD intersect at E .

$BE = 4\text{ cm}$, $CE = 16\text{ cm}$ and $DE = 5\text{ cm}$.

Calculate the size of angle AED .

Give your answer correct to 1 decimal place.

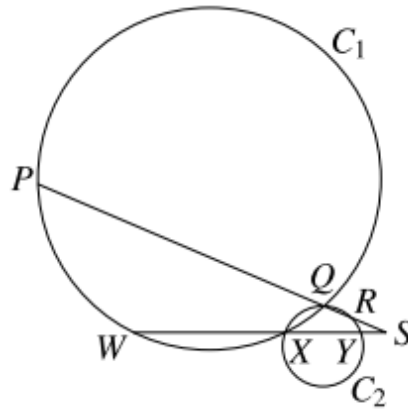
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(5 marks)

QUESTIONS FROM MATHEMATICAL COMPETITIONS

Q1.

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The line segments intersect circle C_2 at points Q , R , X and Y . The lengths QR , RS and XY are 7, 9 and 18 respectively. The length WX is six times the length YS .

What is the sum of the lengths of PS and WS ?