Question 1   Find the value of the pronumeral(s) in each case:
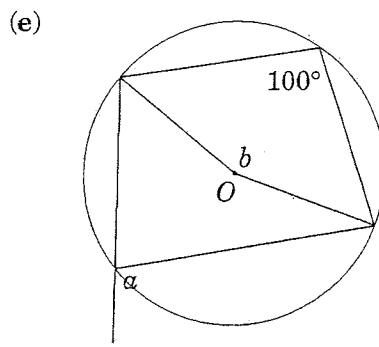
(a)

$-32°$

y

(b)

$48°$ a

O

c

b

d

(c)

n

$62°$ m

O

(d)

$87°$

$95°$

O

x

y

(e)

$100°$

b

O

a

(f)

n O

m

$25°$

Question 2

(a)

O

B

C

A
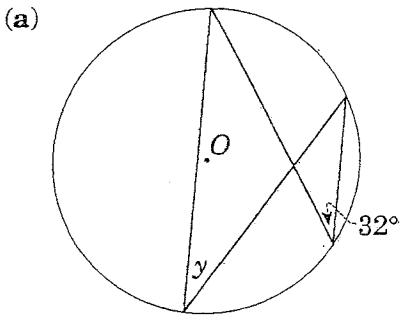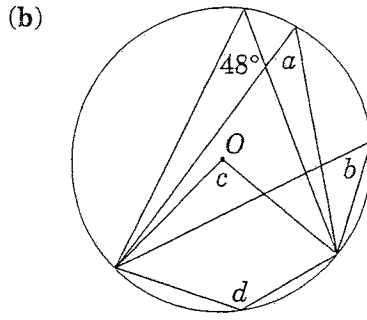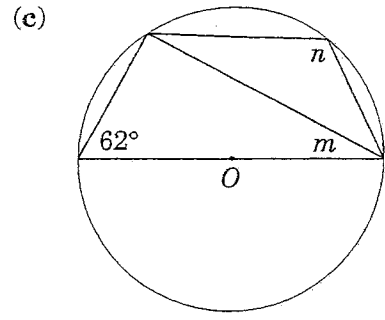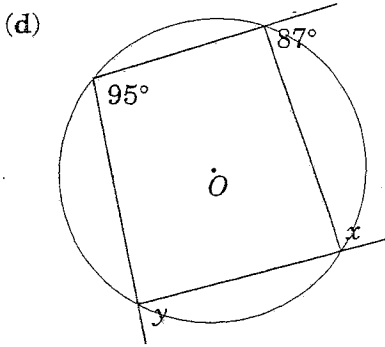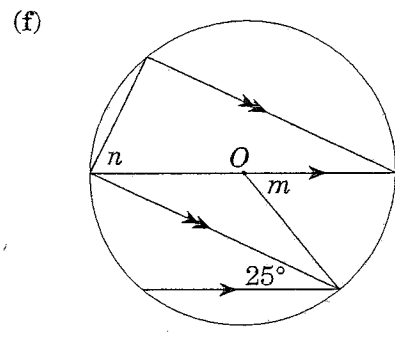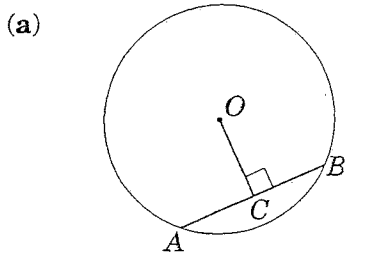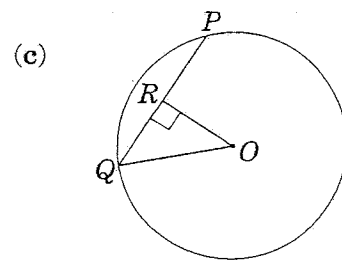
$AB = 16$ cm, $OC = 6$ cm
Find the radius of the
circle.

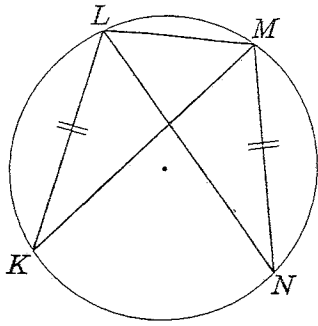---------------------------------
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(b)

A O B

D

C
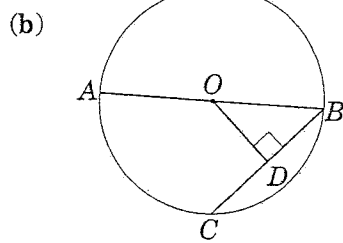
$AB = 34$ cm, $BC = 30$ cm
Find OD.

(c)

P

R

O

Q

$OQ = 20$ cm, $OR = 16$ cm
Find PQ.

Question 3

(a)

$KL = MN$

Prove $KM = LN$ and $\angle KLM = \angle LMN$.

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(b)
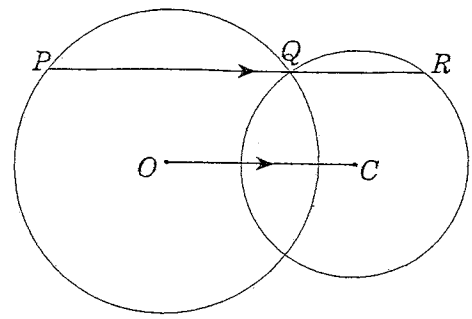
O, C are centres. $PR \parallel OC$

Prove that $PR = 2 \times OC$.

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Question 4

(a)
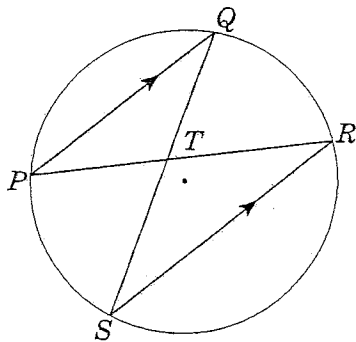
$PQ \parallel SR$

Prove that $PT = QT$.

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(b)
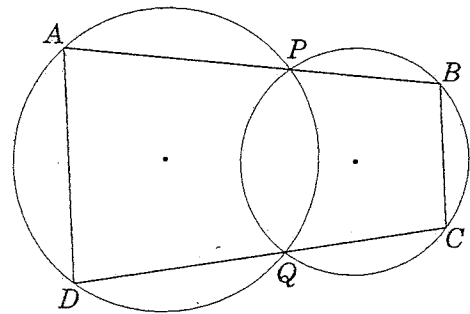
APB and DQC are straight lines.

Prove $AD \parallel BC$.

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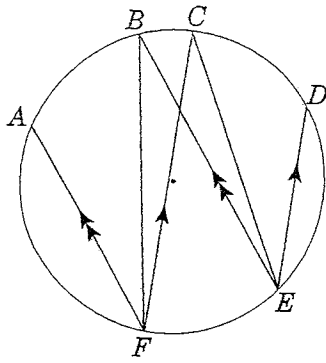
$AF \parallel BE, \quad CF \parallel DE$

Prove $\angle AFB = \angle CED$.

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(d)
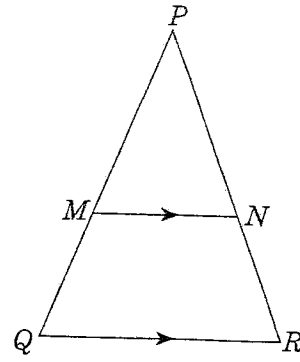
$PQ = PR, \quad MN \parallel QR$

Prove that $MNRQ$ is a cyclic quadrilateral.

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Question 5
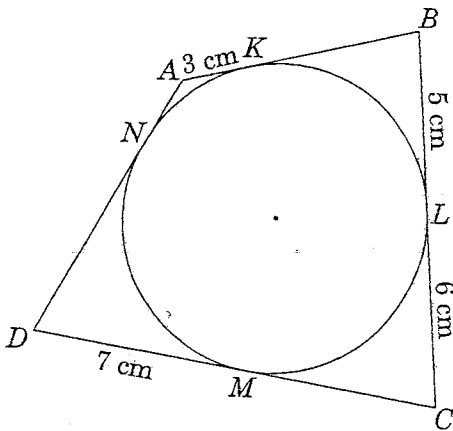
$AB, \ BC, \ CD, \ DA$ are tangents.
Find the perimeter of $ABCD$.

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(b)
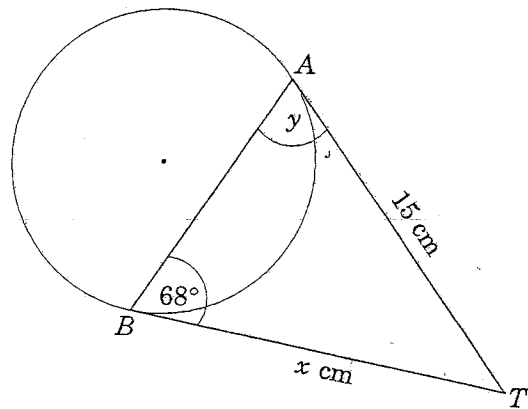
$AT, \ BT$ are tangents.
Find x and y.

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Question 6

(a)
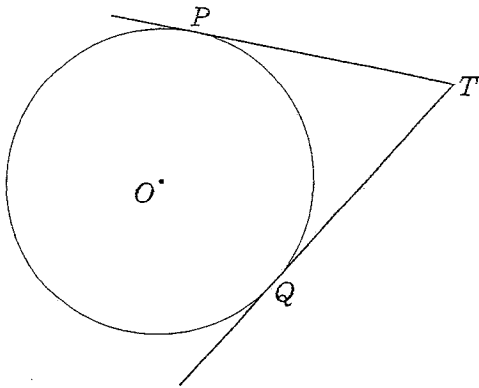
PT, QT are tangents.
Prove that OPTQ is a cyclic quadrilateral.

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(b)
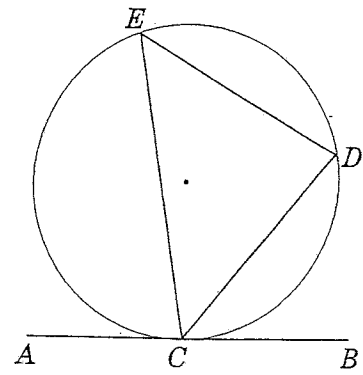
ACB is a tangent. DC bisects $\angle ECB$.
Prove that $DE = DC$.

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Question 7

(a)
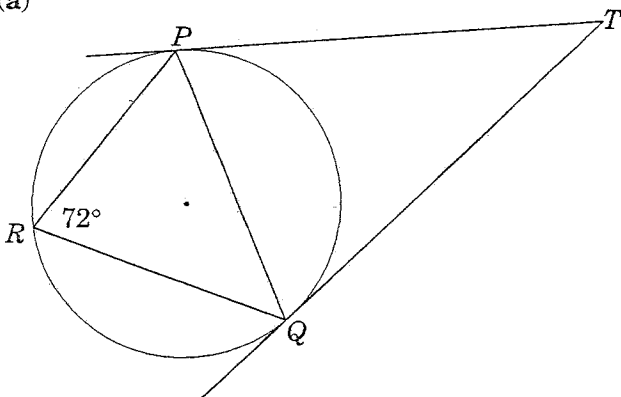
PT, QT are tangents.
Find $\angle PTQ$.

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(b)

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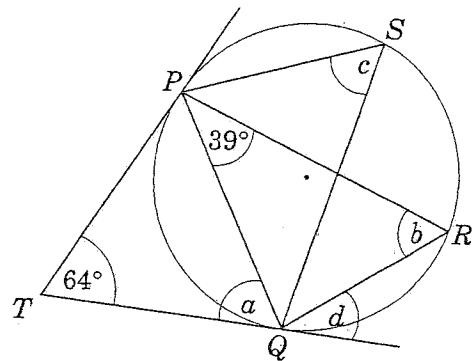
a)
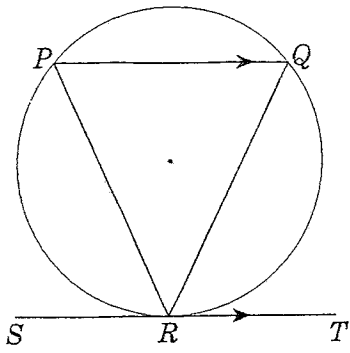
$PQ \parallel ST$ ST is a tangent.
Prove that $PR = QR$.

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(b)
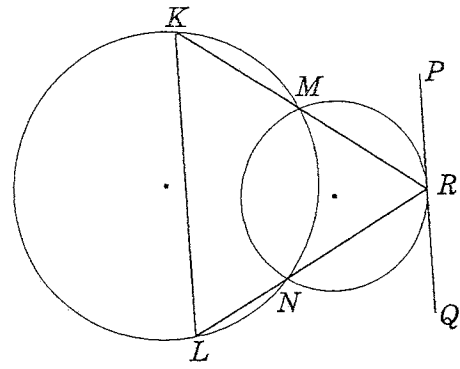
PQ is a tangent.
Prove that $KL \parallel PQ$.

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Question 9

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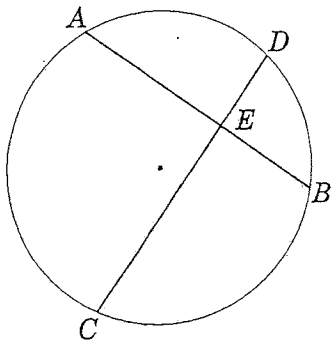
$AE = 6$ cm, $EB = 4$ cm, $CE = 8$ cm
Find CD.

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(b)
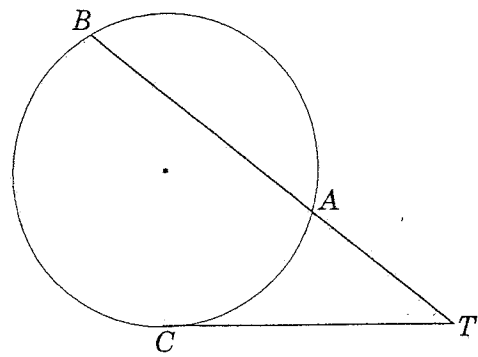
CT is a tangent. $AT = 4$ cm, $AB = 5$ cm
Find CT.

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Question 10

(a)
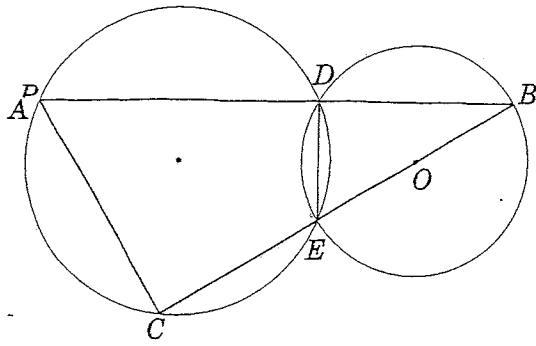
BE is a diameter of the smaller circle.
Prove that ∠*ACB* = 90°.

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(b)
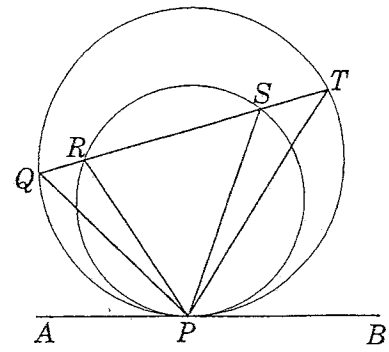
AB is a tangent.
Prove that ∠*QPR* = ∠*SPT*.

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ANSWERS

33 Circle geometry

1 (a) 32°
  (b) $a = 48°$, $b = 48°$, $c = 96°$, $d = 132°$
  (c) $m = 28°$, $n = 118°$
  (d) $x = 95°$, $y = 93°$
  (e) $a = 100°$, $b = 160°$
  (f) $m = 50°$, $n = 65°$

2 (a) 10 cm   (b) 8 cm   (c) 24 cm

3 and 4 Proofs

5 (a) 42 cm   (b) $x = 15$ cm, $y = 68°$

6 Proofs

7 (a) 36°   (b) $a = 58°$, $b = 58°$ $c = 58°$, $d = 39°$

8 Proofs

9 (a) 3 cm   (b) 6 cm

10 Proofs