Name: _____

Trigonometry Problems 2

Date:

Time:

Total marks available:

Total marks achieved: _____
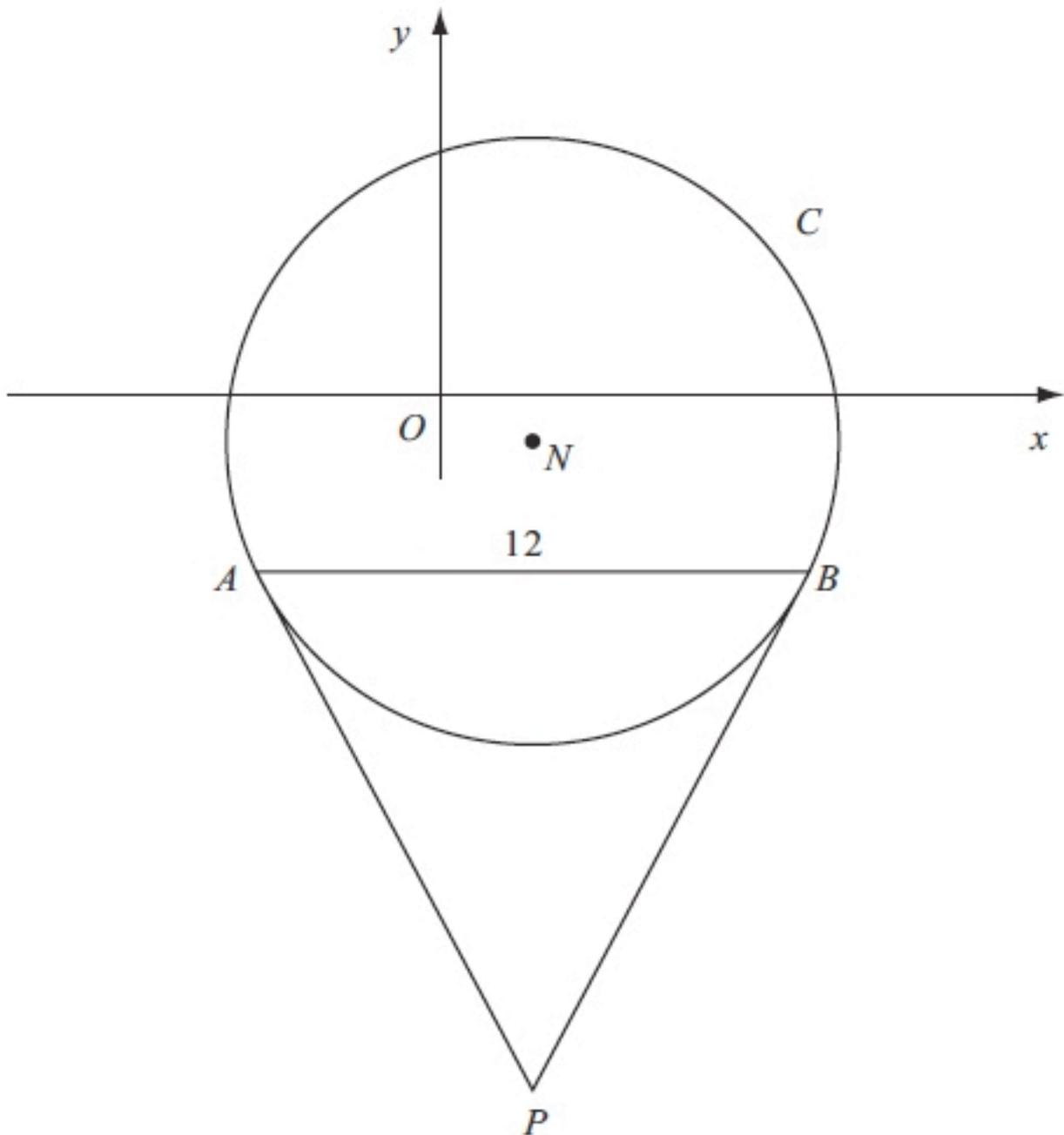
Questions

Q1.

Figure 3

Figure 3 shows a sketch of the circle C with centre N and equation

$$(x - 2) + (y + 1)^2 = \frac{169}{4}$$

(a) Write down the coordinates of N.

(2)

(b) Find the radius of C.

(1)

The chord AB of C is parallel to the x-axis, lies below the x-axis and is of length 12 units as shown in

Figure 3.

(c) Find the coordinates of *A* and the coordinates of *B*.

(5)

(d) Show that angle *ANB* = 134.8°, to the nearest 0.1 of a degree.

(2)

The tangents to *C* at the points *A* and *B* meet at the point *P*.

(e) Find the length *AP*, giving your answer to 3 significant figures.

(2)

(Total 12 marks)

Q2.

In the triangle *ABC*, *AB* = 11 cm, *BC* = 7 cm and *CA* = 8 cm.

(a) Find the size of angle *C*, giving your answer in radians to 3 significant figures.

(3)

(b) Find the area of triangle *ABC*, giving your answer in cm^2 to 3 significant figures.
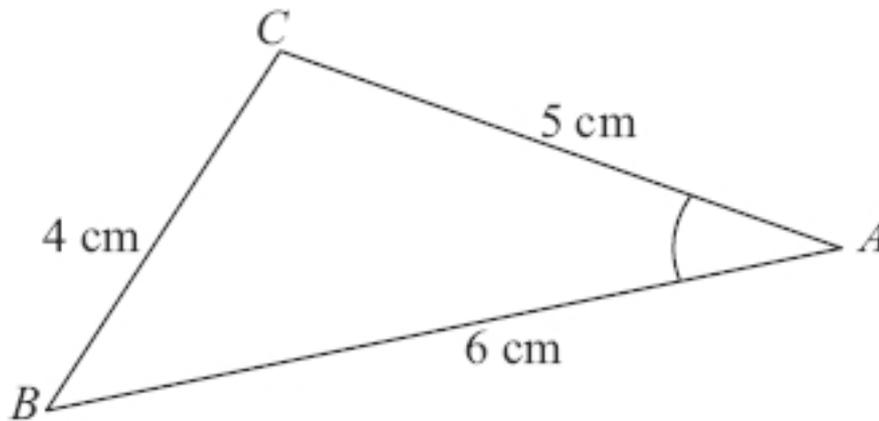
(3)

(Total 6 marks)

Q3.

Figure 1

Figure 1 shows the triangle *ABC*, with *AB* = 6 cm, *BC* = 4 cm and *CA* = 5 cm.

(a) Show that cos *A* = $\dfrac{3}{4}$.

(3)

(b) Hence, or otherwise, find the exact value of sin *A*.

(2)

(Total 5 marks)

Q4.

In the triangle *ABC*, *AB* = 16 cm, *AC* = 13 cm, angle *ABC* = 50° and angle *BCA*= *x*°

Find the two possible values for *x*, giving your answers to one decimal place.

(4)

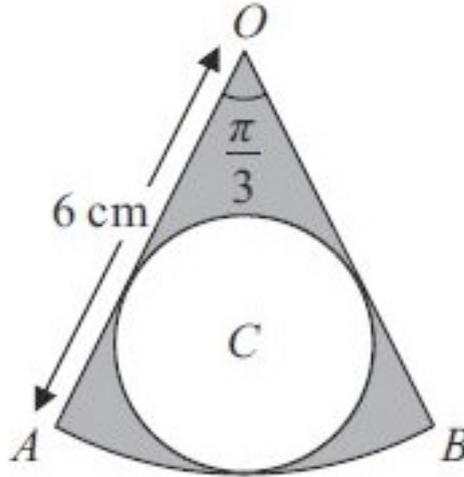**(Total for question = 4 marks)**

Q5.

Figure 1

The shape shown in Figure 1 is a pattern for a pendant. It consists of a sector *OAB* of

$$AOB = \frac{\pi}{3}$$

a circle centre *O*, of radius 6 cm, and angle   . The circle *C*, inside the sector, touches the two straight edges, *OA* and *OB*, and the arc *AB* as shown.

Find

(a) the area of the sector *OAB*,

(2)

(b) the radius of the circle *C*.

(3)

The region outside the circle *C* and inside the sector *OAB* is shown shaded in Figure 1.

(c) Find the area of the shaded region.

(2)
(Total 7 marks)