Starter 2nd November

21.

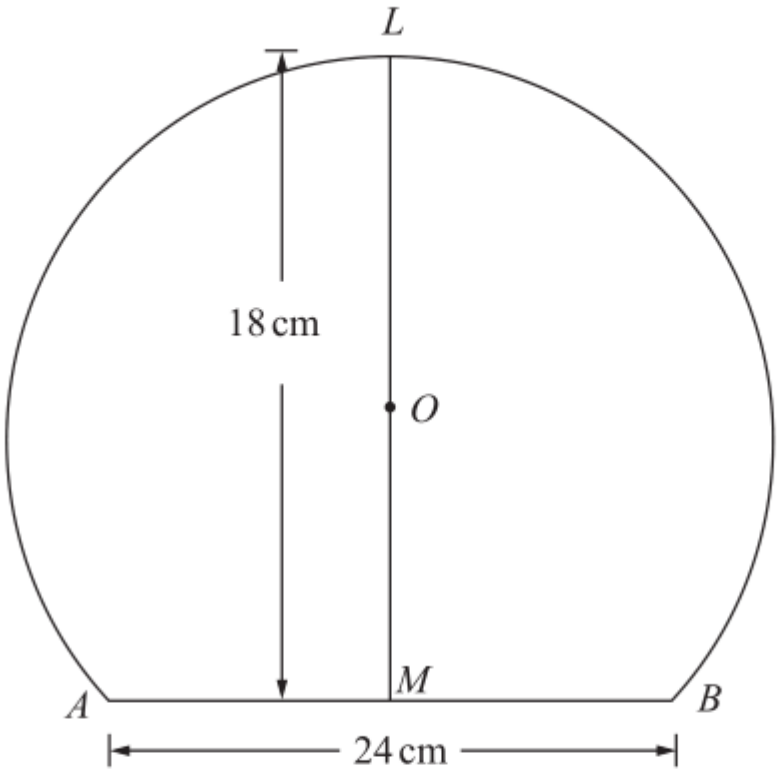


Diagram **NOT** accurately drawn

A, B and L are points on a circle, centre O.
AB is a chord of the circle.
M is the midpoint of AB.
LOM is a straight line.
$AB = 24$ cm.
$LM = 18$ cm.

Calculate the diameter of the circle.

22. Solve the simultaneous equations

$$y - 3x = 4$$

$$x^2 + y^2 = 34$$

14.

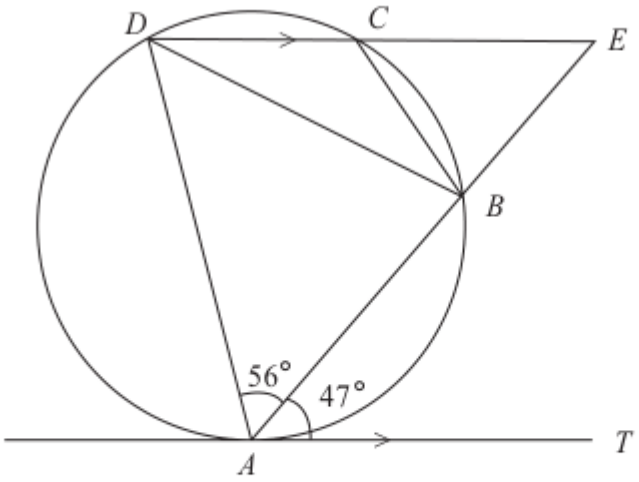


Diagram **NOT** accurately drawn

A, *B*, *C* and *D* are points on a circle.
ABE and *DCE* are straight lines.
AT is a tangent to the circle.
DCE is parallel to *AT*.
Angle *EAT* = 47°. Angle *BAD* = 56°.

(a) (i) Find the size of angle *AED*.

.....°

(ii) Give a reason for your answer.

.....

(2)

(b) Find the size of angle *BCD*.

.....°

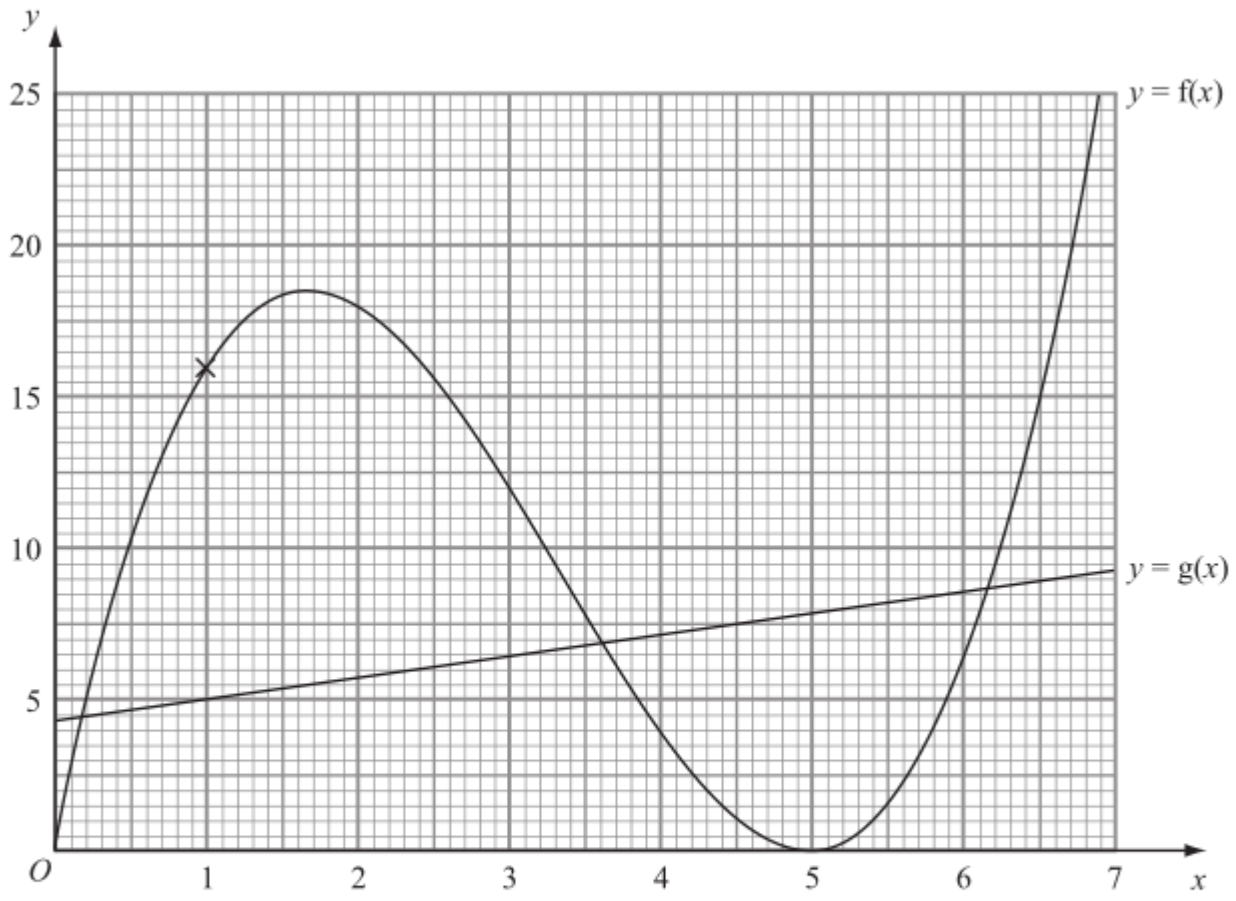
(1)

(c) (i) Find the size of angle *ADB*.

.....°

(ii) Give a reason for your answer.

15. The diagram shows part of the graph of $y = f(x)$ and part of the graph of $y = g(x)$.



(a) Find f(3).

.....

(1)

(b) Solve $f(x) = g(x)$.
Give your answers correct to 1 decimal place.

(c) Find fg(1).

(d) Find an estimate for the gradient of the graph of $y = f(x)$ at the point (1, 16).

16.

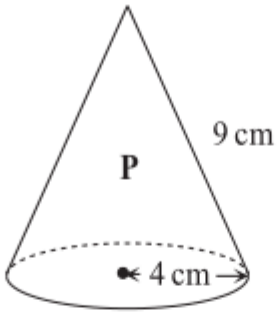


Diagram **NOT** accurately drawn

A solid cone, **P**, has a base radius of 4 cm and a slant height of 9 cm.

(a) Calculate the total surface area of the cone.
Give your answer correct to 3 significant figures.

..... cm^2
(2)

Another solid cone, **Q**, is similar to **P**.
The base radius of **Q** is 6 cm.
The volume of **Q** is k times the volume of **P**.

(b) Calculate the value of k.