

Nat 5 Revision F Paper 1 - Based on Credit Paper 2012

1. Evaluate

$$7.2 - 0.161 \times 30.$$

2

2. Expand and simplify

$$(3x - 2)(2x^2 + x + 5).$$

3

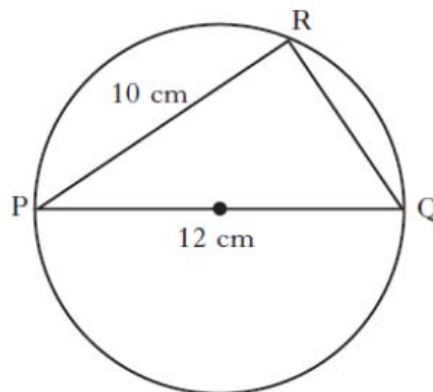
3. Change the subject of the formula to m .

$$L = \frac{\sqrt{m}}{k}$$

2

4. In the diagram,

- PQ is the diameter of the circle
- PQ = 12 centimetres
- PR = 10 centimetres.

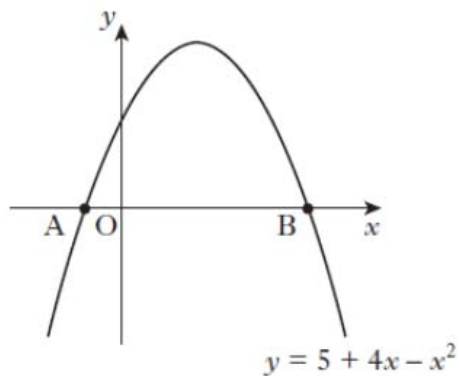


Calculate the length of QR.

Give your answer as a surd in its simplest form.

4

5. The diagram shows part of the graph of $y = 5 + 4x - x^2$.



A is the point $(-1, 0)$.

B is the point $(5, 0)$.

(a) State the equation of the axis of symmetry of the graph.

2

(b) Hence, find the maximum value of $y = 5 + 4x - x^2$.

2

6. Given $2x^2 - 2x - 1 = 0$, show that

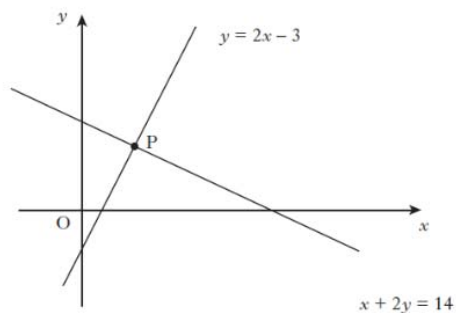
$$x = \frac{1 \pm \sqrt{3}}{2}$$

4

7. The graph below shows two straight lines.

The lines intersect at the point P.

- $y = 2x - 3$
- $x + 2y = 14$



Find, **algebraically**, the coordinates of P.

4

8. Each day, Marissa drives 40 kilometres to work.

(a) On Monday, she drives at a speed of x kilometres per hour.

Find the time taken, in terms of x , for her journey.

1

(b) On Tuesday, she drives 5 kilometres per hour **faster**.

Find the time taken, in terms of x , for this journey.

1

(c) Hence find an expression, in terms of x , for the difference in times of the two journeys.

3

Give this expression **in its simplest form**.

9. (a) Evaluate $(2^3)^2$.

1

(b) Hence find n , when $(2^3)^n = \frac{1}{64}$.

1

10. The sum of consecutive even numbers can be calculated using the following number pattern:

$$\begin{aligned} 2 + 4 + 6 &= 3 \times 4 = 12 \\ 2 + 4 + 6 + 8 &= 4 \times 5 = 20 \\ 2 + 4 + 6 + 8 + 10 &= 5 \times 6 = 30 \end{aligned}$$

(a) Calculate $2 + 4 + \dots + 20$.

1

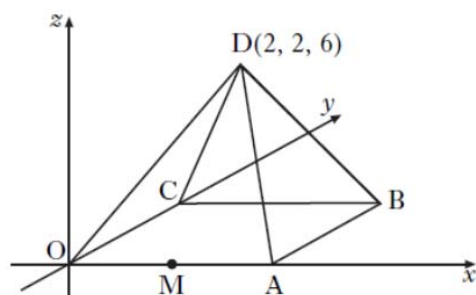
(b) Write down an expression for $2 + 4 + \dots + n$.

1

(c) Hence or otherwise calculate $10 + 12 + \dots + 100$.

2

11. D,OABC is a square based pyramid as shown in the diagram below.



O is the origin, D is the point $(2, 2, 6)$ and $OA = 4$ units.

M is the mid-point of OA.

(a) State the coordinates of B.

1

State the coordinates of M

1

(b) Express \vec{DB} and \vec{DM} in component form.

2