BASIC MATHEMATICS

1. For which value of x is $\dfrac{x-1}{x-2}$ **undefined**?

   A. -2

   B. -1

   C. 1

   D. 2 **(1 mark)**

2. The statement $p \times (q \times r) = (p \times q) \times r$ illustrates which **property**?

   A. closure

   B. commutative

   C. associative

   D. distributive   **(1 mark)**

3. Make p the **subject** of the formula

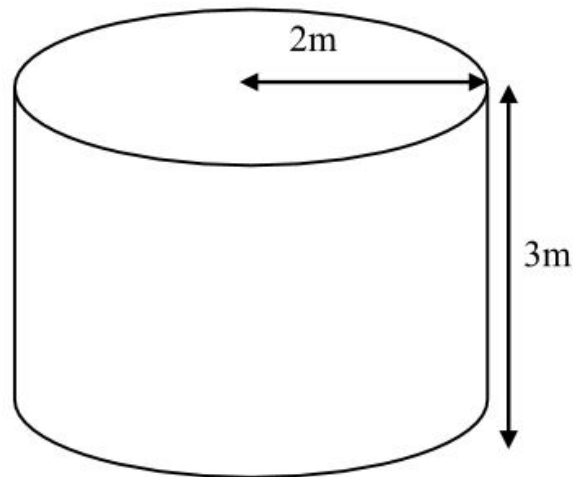$$\frac{\sqrt{p}}{5} - 3 = q$$ **(2 marks)**

4. The **cash price** of a refrigerator is $1000. To buy this refrigerator on hire purchase, a 10% deposit is required, then 12 monthly payments of $100.

   How much more than the cash price will be paid if the refrigerator is bought on **hire purchase**?   **(2 marks)**

5. A **cylindrical** water tank of radius 2m and height 3m is shown below.

The tank is initially empty. If it is filled at the rate of $1.2\,\text{m}^3$ per minute, how long will it take to fill the tank? **(2 marks)**

6. The table given below shows the set {1, 2, 3} under the operation $\otimes$

Use the table to answer parts (i) – (iv).

$\otimes$	1	2	3
1	1	2	3
2	2	0	2
3	3	2	1

(i) Is the set **closed** under $\oplus$? Give a reason for your answer. **(1 mark)**

(ii) What is the **identity element**? **(1 mark)**

(iii) Give the **inverse** of 3. **(1 mark)**

(iv) Evaluate $(1 \otimes 2) \otimes (2 \otimes 3)$ **(1 mark)**