

Mixed Exercise 1 (Non-Calculator)

1.

$$P = x(y + 2)$$

$$Q = xy + 2$$

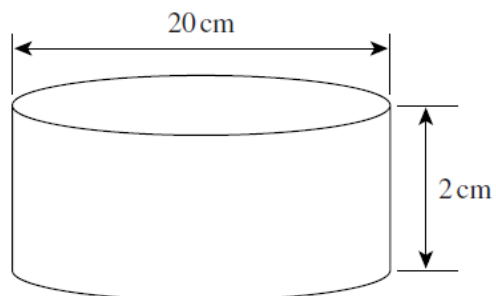
Show clearly that $P - Q = 2(x - 1)$

2.

The diagram shows a cylinder.

The diameter of the cylinder is 20 cm.

The height of the cylinder is 2 cm.



Not drawn accurately

(a) Work out the volume of the cylinder.

Use $\pi = 3.14$

(b) Write your answer to part (a) in litres.

3.

(a) Complete this table of the powers of 5.

| 5^0 | 5^1 | 5^2 | 5^3 | 5^4 | 5^5 | 5^6 | 5^7 |
|-------|-------|-------|-------|-------|-------|--------|--------|
| 1 | 5 | 25 | | 625 | 3125 | 15 625 | 78 125 |

(b) You are given that $15\,625 \times 78\,125 = 5^x$
Use the table to find the value of x .

(c) Use the table to work out $\frac{78\,125}{625 \times 5}$

4.

The n th term of a sequence is $4n - 9$

(a) Work out the first four terms.

(b) What is the difference between the 74th term and the 73rd term?

(c) The last term of this sequence is 391.
How many terms are there in this sequence?

5.

The probability that a boy is left-handed is 0.2

The probability that a girl is left-handed is 0.3

A school has 480 boys and 520 girls.

(a) Estimate the number of left-handed students in the school.

- (b) A student is picked at random from the whole school.
Estimate the probability that the student is left-handed.
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6.

- (a) Solve the simultaneous equations

$$\begin{aligned}4x - 3y &= 13 \\2x + y &= 4\end{aligned}$$

You **must** show your working.
Do **not** use trial and improvement.

(b) (i) Factorise $x^2 - 13x + 30$

(ii) Hence, solve the equation $x^2 - 13x + 30 = 0$

7.

Solve the equation $\frac{2x-1}{4} + \frac{x+2}{3} = 2$

8. Do not use a calculator for this question. Write down clear steps to show your working.

Evaluate $5^{-2} \times 100^{0.5}$

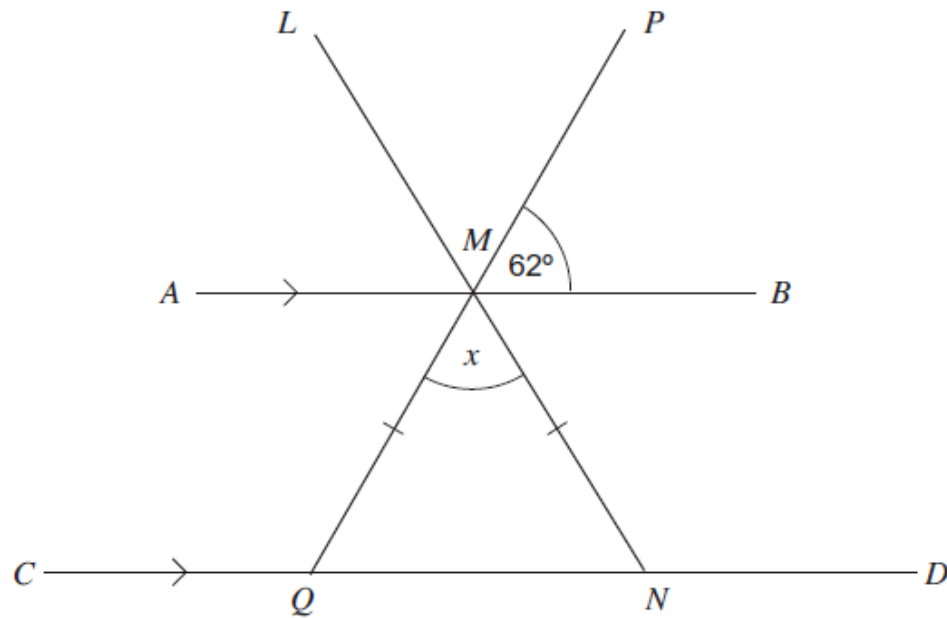
Write your answer in its simplest form.

9.

Make x the subject of $\sqrt{\frac{a}{x+b}} = c$

10.

AB is parallel to CD .
 LMN and PMQ are straight lines.
 $MQ = MN$



Not drawn accurately

Work out the value of x .

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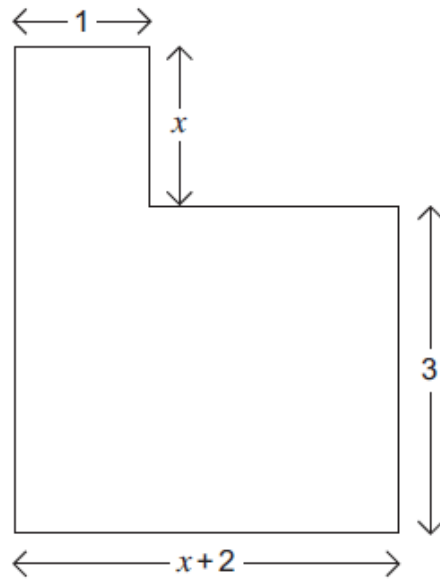
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Answer degrees (3 marks)

11.

The L-shape below has an area of 12 cm^2 .
All corners are right angles.
All lengths are in centimetres.



Not drawn accurately

Work out the value of x .

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Answer cm (4 marks)