Topic Test 1 (20 minutes)

Introduction to quadratics and rearranging formulae - Higher

1 (a) Write $\frac{x^3 \times x^5}{x^2}$ as a single power of x.

[1 mark]

Answer _____

1 (b) Write $\frac{3y^{-2} \times 8y^5}{6y^{-5} \times y^2}$ as a single power of y with a numerical coefficient.

[2 marks]

Answer _____

2 Expand and simplify $(x - 5)(x + 2)$

[2 marks]

Answer _____

3 Rearrange $P = 2w + 2l$ to make w the subject.

[2 marks]

Answer _____

4 (a) Factorise $x^2 - 36$

[1 mark]

Answer _____

4 (b) Factorise fully $9y^2 - 16$

[2 marks]

Answer _____

5 Simplify fully $\dfrac{6a + 2b + 3a - 8b}{10a - 3b + 5a - 7b}$

[2 marks]

Answer _____

6 Factorise $x^2 + 5x - 14$

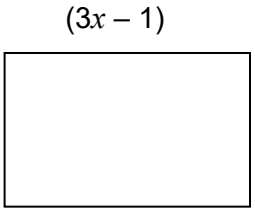
[2 marks]

Answer _____

7 Here is a rectangle.

The length is $3x - 1$ cm

The perimeter is $10x$ cm



Not drawn accurately

Work out an expression for the area in the form $ax^2 + bx + c$

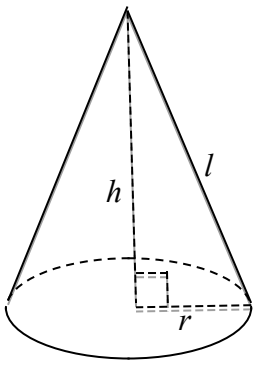
[3 marks]

Answer _____

8 The curved surface area of a cone is given by $A = \pi rl$

The volume of a cone is given by $V = \frac{1}{3}\pi r^2 h$

Where l is the slant height, h is the perpendicular height and r is the radius.



8 (a) Rearrange the area formula to make r the subject.

[1 mark]

Answer _____

8 (b) Write down a formula that connects l, h and r.

[1 mark]

Answer _____

8 (c) Work out the volume formula in terms of π, l and r only.

[1 mark]

Answer _____