

## Revision

1. (a) Use your calculator to work out the value of

$$\frac{7.3 + 2.1}{6.4} + 2.2^2$$

Give your answer as a decimal.

Write down all the figures on your calculator display.

.....  
(2)

- (b) Give your answer to part (a) correct to 3 significant figures.

.....  
(1)

**(Total for Question 5 is 3 marks)**

2. (a) Use your calculator to work out the value of

$$\sqrt{\frac{8.9 + 2.345}{0.76 \times 2.9}}$$

Write down all the figures on your calculator display.

.....  
(2)

- (b) Give your answer to part (a) correct to 2 significant figures.

.....  
(1)

**(Total for Question 2 is 3 marks)**

3. (a) Simplify  $e^9 \div e^5$

.....

(b) Simplify  $(2y^2)^5$

.....

(c)  $5^0 =$

.....

(d)  $\sqrt{25x^6}$

.....

(e) Simplify fully  $\left(\frac{256x^{20}}{y^8}\right)^{-\frac{1}{4}}$

.....

4. Factorise fully  $16c^4p^2 + 20cp^3$

5. Expand and simplify.

(a)  $\sqrt{3a}(\sqrt{12a} + a\sqrt{3a}) =$

.....

(b)  $3x(x + 5)(2x - 4)$

.....

(c)  $2y(y - 5) - 3y(2y + 2)$

.....

6.  $(5\sqrt{2} - e)(3\sqrt{2} + e) = f\sqrt{2} - 6$

Given that  $e$  and  $f$  are positive integers, find the value of  $e$  and the value of  $f$

7. Express  $\frac{2}{\sqrt{3}-1}$  in the form  $p + \sqrt{q}$

where  $p$  and  $q$  are integers.

8. Show that  $\frac{\sqrt{20} + \sqrt{80}}{\sqrt{3}}$  can be expressed in the form  $\sqrt{a}$  where  $a$  is an integer.

9. Show that  $\sqrt{45} + \sqrt{20} = 5\sqrt{5}$  show your working clearly

10. Simplify fully  $\frac{x^2-7x+12}{4x-x^2}$

11. Simplify fully  $\frac{10x^2+23x+12}{4x^2-9}$

12. Express  $\frac{1}{9x^2-25} - \frac{1}{6x+10}$  as a single fraction in its simplest form

13. Write  $\frac{x+3}{5} + \frac{x-2}{3}$  as a single fraction in its simplest form

14. Show that the recurring decimal  $0.2\dot{5}\dot{4} = \frac{14}{55}$

15. Show that the recurring decimal  $0.5\dot{7}\dot{2} = \frac{63}{110}$

16.  $0.4\dot{x}$  is a recurring decimal.  
 $x$  is a whole number such that  $1 \leq x \leq 9$

Find, in terms of  $x$ , the recurring decimal  $0.4\dot{x}$  as a fraction.  
Give your fraction in its simplest form.  
Show clear algebraic working.