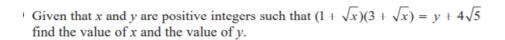
Surds Past Paper Questions Edexcel Maths IGCSE Higher- Calculator

1.

Show that
$$\frac{\sqrt{3} + \sqrt{27}}{\sqrt{2}}$$
 can be expressed in the form \sqrt{k} where k is an integer. State the value of k .

k =

(Total for Question 1) is 3 marks)



 $x = \dots$

v =

(Total for Question is 3 marks)

Given that $(5 - \sqrt{x})^2 = y - 20\sqrt{2}$ where x and y are positive integers, find the value of x and the value of y.

x =

y =

(Total for Question 1 is 3 marks)

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4.

Given that p is a prime number, rationalise the denominator of	$\frac{7\sqrt{p}-p^2}{\sqrt{p^3}}$
Simplify your answer.	\sqrt{p}^{3}

(Total for Question is 3 marks)

(a)
$$\sqrt{50} + \sqrt{128} - \sqrt{200} = n\sqrt{2}$$
 where *n* is an integer.

Find the value of *n*. Show each stage of your working.



Given that a is a prime number,

(b) simplify
$$\frac{5\sqrt{a} + a}{10\sqrt{a}}$$

Give your answer in the form $x + y\sqrt{a}$, where x and y are fractions. Show your working clearly.

Show that $\frac{\sqrt{8}}{\sqrt{8}-2}$ can be written in the form $n+\sqrt{n}$, where n is an integer. Show your working clearly.

(Total for Question 1 is 3 marks)

7.

(a) Rationalise the denominator of $\frac{a+\sqrt{4b}}{a-\sqrt{4b}}$ where a is an integer and b is a prime number. Simplify your answer.

$$\left(\sqrt{a} + \sqrt{8a}\right)^2 = 54 + b\sqrt{2}$$

a and b are positive integers. Find the value of a and the value of b. Show your working clearly.

a =

b =

(Total for Question 222 is 3 marks)

(a) Expand $(5 + 3\sqrt{2})^2$

Give your answer in the form $(a + b\sqrt{2})$, where a and b are integers. Show your working clearly.

(2)

(b) $(5 + 3\sqrt{2})^2 = p + \frac{q}{\sqrt{8}}$, where p and q are integers.

Find the value of q.

q =(3)

(Total for Question 16 is 5 marks)

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

Given that e and f are positive integers,

find the value of e and the value of f.

e =

(Total for Question is 3 marks)