




Countdown to your final Maths exam ...

Higher Tier only ... Part 3 (2020)

Reciprocals, Fractional / Negative Indices & Surds,

	Marks	Actual	  
Q1. Reciprocal / Negative Indices / standard form	3		
Q2. Surds	4		
Q3. Fractional Indices	3		
Q4. Surds	4		
Q5. Fractional and negative indices / Surds	5		
Q6. Surds / Area	3		
Q7. Surds	4		

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NON-CALCULATOR

Questions

Q1. (a) Write down the reciprocal of 5

(1)

(b) Evaluate 3^{-2}

(1)

(c) Calculate $9 \times 10^4 \times 3 \times 10^3$ Give your answer in standard form.

(2)

Q2. (a) Express $5\sqrt{27}$ in the form $n\sqrt{3}$, where n is a positive integer.

(2)

(b) Rationalise the denominator of $\frac{21}{\sqrt{3}}$

(2)

Q3. $16^{\frac{1}{5}} \times 2^x = 8^{\frac{3}{4}}$ Work out the exact value of x .

(3)

Q4. (a) Rationalise the denominator of $\frac{15}{\sqrt{5}}$

(2)

$(1 + \sqrt{3})^2$ can be written in the form $a + b\sqrt{3}$, where a and b are integers.

(b) Work out the value of a and the value of b .

$a = \dots\dots\dots$

$b = \dots\dots\dots$ (2)

Q5. (a) Write down the value of 10^{-1}

(1)

(b) Find the value of $27^{\frac{2}{3}}$

(2)

(c) Write $\sqrt{75}$ in the form $k\sqrt{3}$, where k is an integer.

(2)

Q6. The perimeter of a square is $\sqrt{120}$ cm. Work out the area of the square. Give your answer in its simplest form.

.....cm² **(3)**

Q7. $a = \sqrt{8} + 2$ $b = \sqrt{8} - 2$ $T = a^2 - b^2$

Work out the value of T .

Give your answer in the form $c\sqrt{2}$ where c is an integer.

(4)