




# Countdown to your final Maths exam ...

## Higher Tier only ... Part 2 (2020)

### Recurring Decimals, Fractional/Negative Indices and Surds

	Marks	Actual	  
Q1. Order recurring decimals	2		
Q2. Convert recurring decimal to fraction	3		
Q3. Convert recurring decimals to fractions	3		
Q4. Fractional indices	3		
Q5. Negative indices / Surds	4		
Q6. Factorising quadratics / Surds	6		
Q7. Fractional and negative indices	3		

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**NON-CALCULATOR**

## Questions

**Q1.**                       $0.2\dot{4}\dot{6}$                        $0.24\dot{6}$                        $0.\dot{2}4\dot{6}$                        $0.246$

Write these numbers in order of size.  
Start with the smallest number.

**(2)**

**Q2.** Express the recurring decimal  $0.7\dot{5}0$  as a fraction.

**(3)**

**Q3.** Using algebra, prove that  $0.1\dot{3}\dot{6} \times 0.\dot{2}$  is equal in value to  $\frac{1}{33}$

**(3)**

**Q4.** (a) Write down the value of  $100^{\frac{1}{2}}$

**(1)**

(b) Find the value of  $125^{\frac{2}{3}}$

**(2)**

**Q5.** (a) Find the value of  $2^{-3}$

**(1)**

$5\sqrt{5}$  can be written in the form  $5^k$

(b) Find the value of  $k$ .

**(1)**

(c) Work out the value of  $(\sqrt{12} - \sqrt{3})^2$

**(2)**

**Q6.** (a) Factorise  $y^2 - 5y - 14$

**(2)**

(b) Expand and simplify  $(2\sqrt{5} + 1)(3\sqrt{5} - 1)$

**(2)**

(c) Write  $\frac{6}{\sqrt{12}}$  in the form  $\sqrt{n}$ , where  $n$  is an integer.

**(2)**

**Q7.** (a) Write down the value of  $27^{\frac{1}{3}}$

**(1)**

(b) Find the value of  $25^{-\frac{1}{2}}$

**(2)**