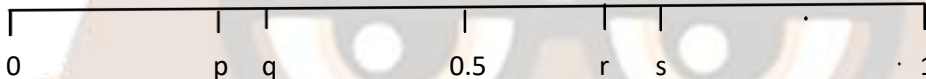




8 ESSENTIAL QUESTIONS TO MASTER

NUMBERS

1	Consider the following set of numbers. $23, \sqrt{3}, \frac{4n}{5}, 2, 0.456, 5^3, \sqrt{36}, 12$ Write down all (a) the irrational number(s) (b) the prime number(s) (c) the perfect square(s)	[1] [1] [1]
2	The numbers p, q, r and s are represented on the number line. The values of p, q, r and s are listed below.  $\frac{1}{4}, 25\%, \frac{\sqrt{3}}{2}, \frac{\pi}{6}$ Find p, q, r and s	[2]
3	For the list of numbers below $-2.3, \frac{\pi}{3}, \sqrt{8}, 18, \sqrt[3]{64}, 0.45$ (a) State all the irrational number(s) (b) State all the composite number(s) (c) Write down the numbers in ascending order.	[1] [1] [2]
4	Evaluate the following without using calculator. Show your working clearly. (a) $4 - 2 - (2) - 6 \times 4 \div (8 - 12)^2$ (b) $2\frac{2}{3} + (-3) - \left(\frac{3}{4} + \frac{4}{5}\right) \div 1\frac{2}{5}$	[2] [3]
5	The statement below describes a positive integer. It is a product of two different prime numbers. Write the numbers less than or equal to 30 that fit the above statement.	[2]
6	The temperature in London is -10°C and the temperature in Berlin is -5°C. (a) Write down how many degrees colder it is in Berlin than it is in London. (b) London is 15°C warmer than Reykjavik. Write down the temperature in Reykjavik.	[1] [1]
7	(a) Arrange the following numbers in ascending order. $1.5, 150, 45\%, 2\pi, \sqrt{2}$ (b) Write down the rational numbers from the following set of numbers: $2.718, 0.625, \sqrt{2}, (-3)^2, \sqrt[2]{2} \times \sqrt{2}, \sqrt{-1}$	[1] [2]

8	John is traveling from London to Paris. In London, the exchange rate is 1 British Pound (£) = 1.15 Euros (€). In Paris, the exchange rate is 1 Euro (€) = 0.85 British Pounds (£). John wants to change 500 British Pounds into Euros. By showing your working clearly, justify whether he should change the money in London or Paris.	[3]
---	--	-----

Answer Key:

1	(a) $\sqrt{3}, \frac{4n}{5}$ (b) 23 (c) $\sqrt{36}$	
2	Convert each value in decimal form $\frac{1}{4} = 0.25, 25\% = 0.25, \frac{\sqrt{3}}{2} \approx 0.866, \frac{\pi}{6} \approx 0.524$ Compare these decimal values on the number line between 0 and 1. Assign values based on their positions: p=0.25, q=0.25, r=0.524, s=0.866	
3	(a) $\frac{\pi}{3}$ & 8 (b) 18 (c) -2.3, 0.45, $\sqrt[3]{64} = 4, \frac{\pi}{3} \approx 1.047, \sqrt{8} \approx 2.828, 18$	
4	(a) $8 - 12 = -4$ $(-4)^2 = 16$ $4 - (2) = 4 + 2 = 6$ $6 \times 4 = 24$ $24 \div 16 = \frac{24}{16} = \frac{3}{2} = 1.5$ (b) $2\frac{2}{3} = \frac{6}{3} + \frac{2}{3} = \frac{8}{3}$ $1\frac{2}{5} = \frac{5}{5} + \frac{2}{5} = \frac{7}{5}$ $\frac{3}{4} + \frac{4}{5} = \frac{3 \times 5}{20} + \frac{4 \times 4}{20}$ $= \frac{15}{20} + \frac{16}{20} = \frac{31}{20}$ $\frac{31}{20} \div \frac{7}{5} = \frac{31}{20} \times \frac{5}{7} = \frac{31 \times 5}{20 \times 7} = \frac{155}{140} = \frac{31}{28}$ $-3 = \frac{-84}{28}$	



Primary · Secondary · Junior College

	$\frac{8}{3} = \frac{8 \times 28}{3 \times 28} = \frac{224}{84}$ $\frac{224}{84} - \frac{84}{28} - \frac{31}{28} = \frac{224 - 84 - 31}{28} = \frac{109}{28}$	
5	6, 10, 14, 15, 22, 21, 26	
6	(a) $-5^{\circ}\text{C} - (-10^{\circ}\text{C}) = 5^{\circ}\text{C}$ (b) $-5^{\circ}\text{C} - 15^{\circ}\text{C} = -20^{\circ}\text{C}$	
7	(a) 45% (0.45), $\sqrt{2}$ (1.4142), 1.5 (1.5555...), 2π (6.28318), 150 (b) $\sqrt{2}, (-3)^2, \sqrt[3]{2} \times \sqrt{2}, \sqrt{-1}$ 2.718 (This is an approximation of the irrational number e) 0.625 (This is a rational number, as it can be expressed as $\frac{5}{8}$) $\sqrt{2}$ (This is an irrational number) $(-3)^2$ (This equals 9, which is a rational number) $\sqrt[3]{2} \times \sqrt{2}$ (This equals $2 \times 2 = 4$, which is a rational number) $\sqrt{-1}$ (This results in an imaginary number, not a real number) Therefore, answer is 0.625, 9, 2	
8	Scenario 1: Exchanging in London - Exchange rate: £1 = €1.15 - John wants to exchange £500. - Euros John will receive: £500 * €1.15/£1 = €575 Scenario 2: Exchanging in Paris - John needs to first travel to Paris with his £500. - Exchange rate: €1 = £0.85. This means £1 = €1/0.85 = €1.17647 (approximately) - Euros John will receive: £500 * (€1/0.85)/£1 = €588.24 (approximately) Comparison - London: John gets €575 - Paris: John gets approximately €588.24 Conclusion John should exchange his money in Paris, as he will receive more Euros (€588.24) compared to exchanging in London (€575). Final Answer: The final answer is Paris.	