

Post Core 1 Review Sheet

OK. So your algebra should be pretty hot, hot, hot after doing all of Core 1. Let's see how much you have forgotten in the mean time...

1. Solve $2 \sin x + 1 = 0$ for $0^\circ < x < 720^\circ$. $x = 210$ or $x = 330$ or $x = 570$ or $x = 690$

2. Solve $4(\cos x)^2 + 1 = 4$ for $-360^\circ < x < 360^\circ$. [Careful!] $x = \pm 30$ or $x = \pm 150$ or $x = \pm 210$ or $x = \pm 330$

3. A triangle has sides of length 8cm, 9cm and 10cm. Find the largest angle in the triangle.

$\theta = 71.7900 \dots$

4. A ship (starting at X) sails 5km on a bearing of 067° . It then changes course and sails 9km on a bearing of 301° to arrive at a point Y . Find the distance XY and the bearing of X from Y .

$XY = 7.2869 \dots$ and $154.718 \dots$

5. Two die are rolled. Find the probability that the sum of the scores is 8. $\frac{5}{36}$

6. A bag contains 5 yellow balls and 7 red balls. Two balls are taken from the bag at once. Find the probability that the balls are different colour. $\frac{35}{66}$

7. A bag contains 3 red, 5 blue and 6 yellow balls. A ball is taken from the bag and its colour noted and the ball replaced. A second ball is then taken from the bag. Find the probability that the two balls were the same colour. $\frac{5}{14}$

8. A bag contains 9 red and 3 blue balls. Three balls are taken from the bag at once. Find the probability that that selection contains two of one colour and one of another. $\frac{27}{44}$

9. The variable P is inversely proportional to the square of t . If $P = 12$ when $t = 3$, find the relationship between P and t . $P = \frac{108}{t^2}$

10. The variable Q is proportional to the square root of n . If $Q = 100$ when $n = 25$, find n when $Q = 320$. $n = 256$

11. Two boxes of cereal are mathematically similar. The smaller has a base of 24cm and the larger has a base of 30cm. If the larger one is 125cm tall then what is the height of the smaller one? (Very large boxes here!) 100cm

12. Two triangles are similar such that $\triangle ABC \sim \triangle XYZ$. Area ABC is 32cm^2 and the area of XYZ is 320cm^2 . If $XY = 27\text{cm}$ then find AB to 3 significant figures. 8.54cm

13. Let us assume that you have a pristine, amazing, stellar graph of $y = \frac{1}{x} + 2x - 3$ in front of you on the most perfect graph paper you have ever seen. Find the equation of the line you would *add* in order to help you solve $\frac{1}{x} = x + 7$. $y = 3x + 4$

14. For the data

2, 4, 3, 6, 5, 7, 7, 9, 4, 3, 5, 6, 4, 1, 2

find the median and the IQR. 3

15. For the following frequency table, estimate the mean. 25.625

h	f
$0 \leq h < 10$	5
$10 \leq h < 20$	7
$20 \leq h < 30$	13
$30 \leq h < 40$	12
$40 \leq h < 60$	3