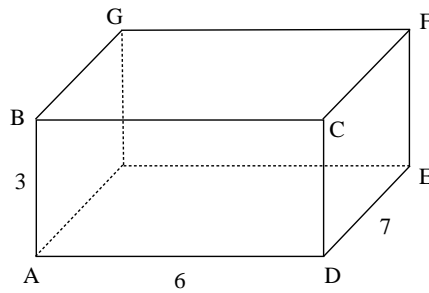


Resetting Test Revision Questions 1

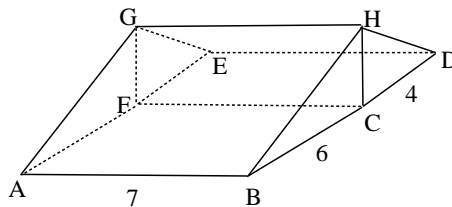
1. (*General*) Calculate $\frac{1}{2} + 1\frac{1}{3} \times 2\frac{1}{4}$.
2. (*General*) Write $\frac{a}{b} + c\frac{d}{e}$ as a single fraction.
3. (*General*) Solve $\frac{x+2}{3} - \frac{2x-3}{5} = x$.
4. (*General*) Make x the subject of $a(x - b) = x + c$.
5. (*Coordinate Geometry*) The gradient between $(3, 5)$ and $(-7, y)$ is $\frac{1}{5}$. Find y .
6. (*Coordinate Geometry*) The distance between $(4, 8)$ and $(a, 3)$ is 13. Find the possible values of a .
7. (*Coordinate Geometry*) Find the equation of the line passing through $(\frac{1}{2}, 2)$ and $(\frac{1}{3}, 4)$ in the form $ax + by = c$.
8. (*Coordinate Geometry*) Find the mid-point of $(1, \frac{2}{3})$ and $(3\frac{1}{2}, \frac{1}{3})$.
9. (*Coordinate Geometry*) Find the perpendicular bisector to the points $(4, 5)$ and $(12, 8)$ leaving no fractions in your final equation.
10. (*Coordinate Geometry*) Find the equation of the line parallel to $4x + 3y + 8 = 0$ through $(\frac{1}{2}, \frac{1}{2})$ in the form $ax + by + c = 0$.
11. (*Coordinate Geometry*) Find the intersection of the lines $x - 3y = 7$ and $2x + 5y = 1$.
12. (*Coordinate Geometry*) Find the intersection of the lines $ax + by + a^2 = 0$ and $bx - ay + b^2 = 0$.
13. (*Coordinate Geometry*) In 3D space coordinates are defined by (x, y, z) coordinates. Find the distance between the points $(4, 3, 2)$ and $(3, 7, -4)$ leaving your answer in surd form.
14. (*Probability*) Two dice are thrown. Find the probability that the product of the two scores is odd.
15. (*Probability*) In one bag there are 5 red and 2 green balls. In another there are 3 red and 6 green balls. If a ball is taken from each bag, find the probability they are the same colour.
16. (*Probability*) In one bag there are 4 red and 3 green balls. In another there are r red and 7 green balls. If a ball is taken from each bag, the probability of them being different colours is $\frac{43}{84}$. How many red balls are in the second bag?
17. (*Probability*) On Saturday and Sunday Alex has a $\frac{1}{6}$ chance of 'pulling'. On all other days he has a $\frac{1}{20}$ chance of 'pulling'. On a randomly selected day of the week find the probability that he 'pulls'.
18. (*Probability*) There are 5 black and 7 white balls in a bag (how original!). Two balls are removed from the bag at once.
 - (a) Find the probability they are both black.
 - (b) Find the probability they are the same colour.
 - (c) Find the probability they are both black, given that the two balls are both the same colour.
 - (d) Find the probability they are both white, given that they are different colours.
19. (*Puzzle*) The number 5^{25} is divisible by how many square numbers?
20. (*Puzzle*) Find the value of $2^{2006} - 2^{2005} - 2^{2004} - 2^{2003}$ giving your answer in the form 2^k where k needs to be found.

21. (3D Trig) From the picture find:



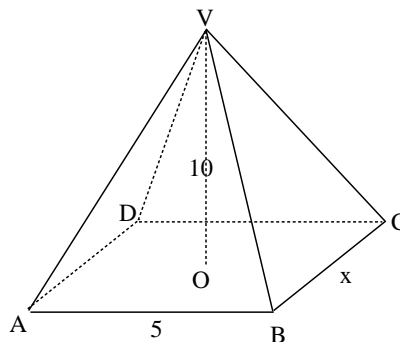
- (i) Length AE .
- (ii) Angle \widehat{AFE} .
- (iii) Length AF .
- (iv) If point M is the mid-point of AF , find angle \widehat{AMD} .

22. (3D Trig) In the picture $\widehat{HAC} = 10^\circ$. Find:



- (i) Length CH .
- (ii) Angle \widehat{HBC} .
- (iii) Angle \widehat{BGF} .
- (iv) Length AH .
- (v) Angle \widehat{DGE} .
- (vi) Angle \widehat{GDF} .

23. (3D Trig) The volume of a pyramid is $\frac{1}{3} \times (\text{area of base}) \times (\text{perpendicular height})$. The pyramid in the picture has volume 100unit^3 . Find:



- (i) Length x .
- (ii) Length VC .

- (iii) Angle $O\hat{A}V$.
- (iv) Angle $D\hat{V}C$.
- (v) Angle $A\hat{V}C$.