

## Mathematics Revision Exercises

### *Simultaneous Equations and their Applications*

Find a values for  $x$  and  $y$  which satisfy each of the following:-

1.  $x+y=6, x-y=0$
2.  $x+2y=3, -x+3y=2$
3.  $-3x+4y=7, 3x+y=-2$
4.  $2x+5y=16, x-y=1$
5.  $3x+4y=-7, 2x+y=-3$
6.  $2x-5y=1, 4x-3y=9$
7.  $4x-5y=22, 7x+3y=15$
8.  $2x+3y-8=0, 3x+2y=17$
9.  $7x+4y-1=0, 5x+2y+1=0$
10.  $2x-7y=-3, 3x-7y=-1$
11.  $3x+2y=6, x-y=1$
12.  $2x+y+2=0, x+2=y$
13.  $3x=4y+12, y=x-1$
14.  $4x=5y, 3y+7-5x$
15.  $3x-5y=2, 7x+3y=12$
16.  $11x+3y+7=0, 2x+5y-21=0$
17.  $7x+3y-15=0, 5x-2y=19$
18.  $5x-2y=6/10, 2x+y=3/2$
19. Find a solution to the following;-  
 $5p+q=10, 14p+3q=18$
20.  $s-8t+20=0, 5s-7t+1=0$
21. The sum of the length and breadth of a rectangle is 84cm. The length is 18cm more than the breadth. Find the length and breadth.
22. Six bottles of juice and four cans of juice cost £3.40. Three bottles and ten cans of juice cost £4.90. Find the cost of a single bottle and a single can.
23. A straight line has equation  $y=mx+c$ .  $(2,2)$  and  $(3,6)$  are points on the line. Form a pair of equations and solve them to find  $m$  and  $c$ . If the point  $(a,14)$  lies on the line, find the value of 'a' from you equation.
24. The height  $h$  metres above the ground reached by a missile after  $t$  seconds is given by the equation  $h=at+bt^2$ . Find the constants 'a' and 'b' given that  $h=19$  when  $t=1$ , and when  $h=28$  and  $t=2$ . Use the formula to calculate  $h$  when  $t=4$ . What happens when  $t=4.8$ ?
25. 480 people attend a heavy metal concert. Standing tickets are £40 and seats cost £60 each! If the total amount of money taken in was £25,300 how many people were standing and how many were sitting?
26. A record company has a machine X which can make 30 CDs per minute. A new machine Y is installed which makes 40 CDs per minute. If 36,000 CDs were produced on a day when the total amount of machine running time was 18 hours, for how many hours was machine X operated for and machine Y operated for?

ANSWERS  
 1)  $3, 3$  2)  $1, 1$  3)  $-1, 1$  4)  $3, 2$  5)  $-1, -1$  6)  $3, 1$  7)  $3, -2$  8)  $7, -2$  9)  $-1, 2$  10)  $2, 1$  11)  $8/5, 3/5$  12)  $-4/3, 2/3$  13)  $-8, -9$   
 14)  $35/37, 28/37$  15)  $3/2, 1/2$  16)  $-2, 5$  17)  $3, -2$  18)  $2/5, 7/10$  19)  $12, -50$  20)  $4, 3$  21)  $51cm, 35cm$  22)  $30p, 40p$   
 23)  $m=4, c=-6; a=5$  24)  $a=24, b=-5; h=16$ ; missile hits land! 25)  $175, 305$  26)  $12$  and  $6$  hours respectively.