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,33cm 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.