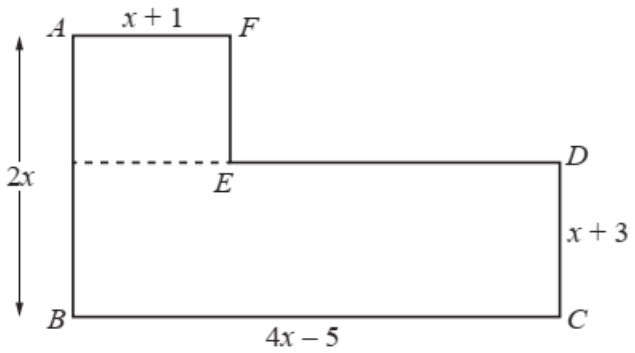
Past Papers Worksheet P4 Algebra Word Problems IGCSE Mathematics 0580

1. All the lengths in this question are in centimetres.



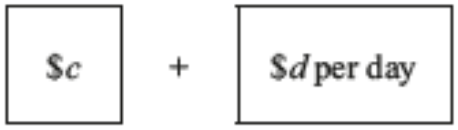
The diagram shows a shape ABCDEF made from two rectangles
The total area of the shape is 342cm^2.
(a) show that $x^2 + x - 72 = 0$ [5]
(b) Solve by factorization $x^2 + x - 72 = 0$. [3]
(c) Work out the perimeter of the shape ABCDEF. [2]
(d) Calculate angle DBC [2]
0580/43/M/J/20 Q5)

2. The cost of a bottle of water is (w – 1) cents.
The cost of a bottle of milk is (2w – 11) cents.
A certain number of bottles of water costs \$4.80 .
The same number of bottles of milk costs \$7.80 .
Find the value of w. [4]
0580/43/O/N/15 Q7(c)

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3. The cost of one ruler is r cents.
   The cost of one protractor is p cents.
   The total cost of 5 rulers and 1 protractor is 245 cents.
   The total cost of 2 rulers and 3 protractors is 215 cents.
   Write down two equations in terms of r and p
   and solve these equations to find the cost of one
   protractor. [5]
   0580/41/O/N/19 Q7((b)

4. The cost to hire a tent consists of two parts.

   The total cost for 4 days is $27.10 and for 7 days is $34.30.
   Write down two equations in c and d and solve them. [4]
   0580/42/O/N/11 Q1(b)

5. The cost of 1 apple is a cents.
   The cost of 1 pear is p cents.
   The total cost of 7 apples and 9 pears is 354 cents.
   (i) Write down an equation in terms of a and p. [1]
   (ii) The cost of 1 pear is 2 cents more than the cost of 1 apple.
   Find the value of a and the value of p [3]
   0580/42/O/N/17 Q8(a)

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6. The cost of a small bottle of juice is \$y.
The cost of a large bottle of juice is \$(y + 1).
When Catriona spends \$36 on small bottles only, she receives 25 more bottles than when she spends \$36 on large bottles only
(i) Show that $25y^2 + 25y - 36 = 0$. [3]
(ii) Factorise $25y^2 + 25y - 36$ [2]
(iii) Solve the equation $25y^2 + 25y - 36 = 0$ [1]
(iv) Find the total cost of 1 small bottle of juice and 1 large bottle of juice [1]
0580/43/M/J/12 Q10(b)

7. The cost of a biscuit is x cents.
The cost of a cake is $(x + 3)$ cents.
The number of biscuits Roshni can buy for 72 cents is 2 more than the number of cakes she can buy for 72 cents.
(i) Show that $x^2 + 3x - 108 = 0$. [3]
(ii) Solve the equation $x^2 + 3x - 108 = 0$ [3]
(iii) Find the total cost of 2 biscuits and 1 cake. [1]
0580/43/O/N/11 Q5(b)

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8. In a shop, the price of a monthly magazine is $m and the price of a weekly magazine is $ (m – 0.75) .
One day, the shop receives
• $168 from selling monthly magazines
• $207 from selling weekly magazines.
The total number of these magazines sold during this day is 100
(i) Show that $50m^2 – 225m + 63 = 0$. [3]
(ii) Find the price of a monthly magazine.
Show all your working. [3]
0580/43/M/J/18 Q5 (c)

9. Paulo and Jim each buy sacks of rice but from different shops
Paulo pays $72 for sacks costing $m each.
Jim pays $72 for sacks costing $(m + 0.9) each.
(a) (i) Find an expression, in terms of m, for the number of sacks Paulo buys. [1]
(ii) Find an expression, in terms of m, for the number of sacks Jim buys. [1]
(b) Paulo buys 4 more sacks than Jim.
Write down an equation, in terms of m, and show that it simplifies to $10m^2 + 9m - 162 = 0$ [4]
(c) (i) Solve $10m^2 + 9m - 162 = 0$ [4]
(ii) Find the number of sacks of rice that Paulo buys. [1]
0580/41/O/N/18 Q9)

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10. Ahmed sells different types of cake in his shop.
The cost of each cake depends on its type and its size.
Every small cake costs \$ x and every large cake costs \$$(2x + 1)$.
(a) The total cost of 3 small lemon cakes and 2 large lemon cakes is \$12.36 .
Find the cost of a small lemon cake. [3]
(b) The cost of 18 small chocolate cakes is the same as the cost of 7 large chocolate cakes.
Find the cost of a small chocolate cake.[3]
(c) The number of small cherry cakes that can be bought for \$4 is the same as the number of large cherry cakes that can be bought for \$13.
Find the cost of a small cherry cake. [3]
(d) Petra spends \$20 on small coffee cakes and \$10 on large coffee cakes.
The total number of cakes is 45.
Write an equation in terms of x.
Solve this equation to find the cost of a small coffee cake.
Show all your working. [7]
0580/42/O/N/20 Q5) (a)

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Answer

Q1) (a) $(4x-5)(x+3)+(x+1)(x-3)=342$ (b) $(x+9)(x-8)=0$ leading to -9 and 8 (c) 86 (d) 22.2	Q6) (i) 36/y – 36/(y + 1)= 25 (ii) (5y + 9)(5y − 4) (iii) –1.8 oe, 0.8 (iv) 2.6
Q2) 25	Q7) (i)72/x – 72/(x + 3) = 2 (ii) –12, 9 (iii)30
Q3) 5r + p = 245 , 2r + 3p = 215 , [p=] 45 (r=40)	Q8) (i)168/m + 207/(m – 0.75) = 100 (ii)(10m- 3)(5m- 21)=0, 4.2
Q4) c + 4d = 27.10 , c + 7d = 34.30 , (c =) 17.5(0) and (d =) 2.4(0)	Q9) (a)(i) 72/m (ii)72/(m + 0.9) (b)72 / m - 72/ (m + 0.9)= 4 (c)(i) (2m + 9)(5m −18) = 0, 3.6 and −4.5 (ii) 20
Q5) (i) 7a + 9p = 354 (ii) [a =] 21, [p =] 23	Q10) (a) 1.48 (b) 1.75 (c) 0.8 (d)$\frac{20}{x}+\frac{10}{2x+1}=45$, 90x^2 -5x -20=0, $(9x+4)(2x-1)=0$, 0.5 (final answer)

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