SIMULTANEOUS EQUATIONS (WORDED QUESTIONS)

- 1. At a hardware store, 7 chairs and 9 desks cost \$1,200; 13 chairs and 6 desks cost \$1,200.
 - (a) Using *c* to represent the cost, in dollars, of one chair and *d* to represent the cost, in dollars, of one desk, write down a pair of simultaneous equations to represent the information above.
 - (b) Hence, determine
 - (i) the cost of a chair
 - (ii) the cost of a desk
- 2. Mary paid \$2,100 for four parrots and three dogs. If she had bought one more dog and two fewer parrots, she would have paid \$200 more. Calculate the cost of
 - (i) a dog,
 - (ii) a parrot.
- 3. The cost of four chairs and a small table is \$684. The cost of 6 chairs and a large table is \$1196. The cost of the table is twice the cost of the small table. Given that *a* is the cost, in dollars, of a chair and *b* is the cost in dollars of a small table;
 - (i) write a pair of simultaneous equations to represent the information given,
 - (ii) calculate the cost of the large table.
- 4. 7 pencils and 5 erasers cost \$11.60, whereas 5 pencils and 3 erasers cost \$7.60. calculate the cost of 8 erasers.
- 5. A restaurant bill of \$350 was paid using \$5 notes and \$50 notes. The total number of nites used was 16. Let *x* be the number of \$5 notes.

Let *y* be the number of \$50 notes.

- (i) Write two equations in *x* and *y* to represent the information given.
- (ii) Hence, calculate the number of 5 notes and the number of 50 notes.
- 6. If 5 is added to both the numerator and the denominator of a fraction the result is equivalent to $\frac{3}{4}$, if three is

subtracted from both the numerator and the denominator of the original fraction, the new fraction is

equivalent to $\frac{1}{4}$. Find the original fraction.

- 7. At a school shop, pens are sold for *x* dollars each and rulers for *y* dollars each. Mr James bought 4 pens and 5 rulers for \$24. Mrs Singh bought 2 of the same pens and 7 of the same rulers for \$21.
 - (i) Write two equations in *x* and *y* to represent the information given above.
 - (ii) Solve the equations.
 - (iii) Calculate the total cost for 1 pen and 1 ruler.

ANSWERS

- 1. (a) 7c + 9d = 1200; 13c + 6d = 1200 (b) (i) \$48 (ii) \$96
- 2. (i) \$500 (ii) \$150
- 3. (i) 4a + b = 684; 6a + 2b = 1196 (ii) \$680
- 4. \$9.60
- 5. (i) 5x + 50y = 350; x + y = 16 (ii) 10 \$5 notes, 6 \$50 notes
- 6. $\frac{4}{7}$
- 7. (i) 4x + 5y = 24; 2x + 7y = 21 (ii) x = \$3.50, y = \$2 (iii) \$5.50