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Term 2 Practice

SEC 2 MATH

Answer **all** the questions.

1. Factorise each of the following expressions.
   a) $24 + 18y$
   b) $38x - 10y$
   c) $6x^2 - 21x$

2. Solve the following equations.
   a) $4a^2 + 12a = 0$
   b) $b^2 - 5b - 6 = 0$
   c) $m^2 - 5m + 6 = 0$

3. If $x = 3$ is one of the solutions to $2x^2 - kx - 12 = 0$, find

   a) the value of k,

   b) the other solution of the equation.

4. Simplify $\frac{x-1}{2} = \frac{2}{x-1}$ as a single fraction in the simplest form.

5. Solve the following equations.
   a) $x^2 - 6x = 27$
   b) $x^2 - x = 2x + 18$
   c) $x(x - 5) = 6$

6. In each of the following cases, make the letter in the brackets the subject of the formula.
   a. $\frac{x}{3} = \frac{y}{2-y}$ $[y]$
   b. $p = \frac{qr}{1-2q}$ $[q]$
   c. $x = \frac{9}{4y-6}$ $[y]$
   d. $b = \frac{6p}{3p+2}$ $[p]$

7. Given that $a = \sqrt[3]{\frac{7b+13}{b-24}}$,

   a) find the value of b when $a = 3$,

   b) find the value of a when $b = 26$, giving your answer in 3 significant figures.