MPM 1DI Unit 3 Solving Equations: PRACTICE FOR QUIZ #1

Solve and check each of the following. Use opposite operation to solve.
To get full marks on the quiz you must show all steps.

(a) $a - 5 = 2$ (b) $b + 7 = 2$ (c) $3c = 21$ (d) $\frac{d}{4} = 3$

To isolate 'a' we must add 5 to both sides.

$a - 5 + 5 = 2 + 5$ ✓

$a = 7$ ✓

get rid of +7

$b + 7 - 7 = 2 - 7$ ✓

$b = -5$ ✓

To isolate 'c' 'undo' multiplying by 3

$\frac{3c}{3} = \frac{21}{3}$ ✓

$c = 7$ ✓

undo ÷ 4 by multiplying by 4 (Remember fraction bar means divide).

$\frac{d}{4} \times 4 = 3 \times 4$ ✓

$d = 12$ ✓

(e) $2e - 5 = 1$ (f) $3f + 11 = 4$ (g) $7x + 2 = 3x - 4$

1st isolate '2e'

$2e - 5 + 5 = 1 + 5$ ✓

$2e = 6$

$\frac{2e}{2} = \frac{6}{2}$ ✓

$e = 3$ ✓

$3f + 11 - 11 = 4 - 11$ ✓

$3f = -7$

$\frac{3f}{3} = \frac{-7}{3}$ ✓

$f = -\frac{7}{3}$ ✓

← get rid of 3x on right side

↑ get rid of 2 on the left side

$7x + 2 - 2 = 3x - 4 - 2$ ✓

$7x = 3x - 6$

$7x - 3x = 3x - 6 - 3x$ ✓

$4x = -6$

$\frac{4x}{4} = \frac{-6}{4}$ ✓

$x = \frac{-6}{4}$

$x = -\frac{3}{2}$ ✓

(h) $2x - 1 = 8x + 4$ (i) $5x - 3 = 5 + 4(x + 2)$

$2x - 1 + 1 = 8x + 4 + 1$ ✓

$2x = 8x + 5$

$2x - 8x = 8x + 5 - 8x$ ✓

$-6x = 5$

$\frac{-6x}{-6} = \frac{5}{-6}$ ✓

$x = -\frac{5}{6}$ ✓

$5x - 3 = 5 + 4x + 8$ ✓

$5x - 3 = 4x + 13$

$5x - 3 + 3 = 4x + 13 + 3$ ✓

$5x = 4x + 16$

$5x - 4x = 4x + 16 - 4x$ ✓

$x = 16$ ✓

(j) $3(2x + 1) = 5 + 4(x + 2)$

$6x + 3 = 5 + 4x + 8$ ✓

$6x + 3 = 4x + 13$

$6x + 3 - 3 = 4x + 13 - 3$ ✓

$6x = 4x + 10$

$6x - 4x = 4x + 10 - 4x$ ✓

$2x = 10$

$\frac{2x}{2} = \frac{10}{2}$ ✓

$x = 5$ ✓

(k) $-3(2x + 1) = 4(x - 2) - 12$

$-6x - 3 = 4x - 8 - 12$ ✓

$-6x - 3 = 4x - 20$

$-6x - 3 + 3 = 4x - 20 + 3$ ✓

$-6x = 4x - 17$

$-6x - 4x = 4x - 17 - 4x$ ✓

$-10x = -17$

$\frac{-10x}{-10} = \frac{-17}{-10}$ ✓

$x = \frac{17}{10}$ ✓

OR $x = 1.7$