

Fifth Set of Homework for Math 05

Nikos Apostolakis

Please note: You should fully justify your answers.

1 Solving Linear equations

1. Solve each of the following linear equations.

(a) $-4x + 20 = 6x$

(b) $2x - 7 = 5x + 8$

(c) $5 - 4x = 7x - 5$

(d) $7x - 3 = 2x - 3$

(e) $-2x + \frac{5}{2} = 5x - 1$

(f) $9 + x = -3x + 7$

(g) $\frac{2}{3}x - 4 = 5x + \frac{7}{2}$

(h) $2(x + 5) = 12$

(i) $3(5 - 2x) = 4x - 7$

(j) $4(-3x + 1) + 2 = -12x + 6$

(k) $2(5x + 10) - 3x = -2(x + 8)$

(l) $-5(-2x + 6) + 9 = -3(x + 11) + 13x$

(m) $-4(3x - 6) + 2x = 5(x + 1) - 11$

(n) $3(-5x + 8) - 3 = 2(x - 5) - 17x + 11$

(o) $2(x - 5) + 3x - 10 = 3(-2x + 4) + 4x + 3$

(p) $\frac{2x - 3}{4} + \frac{x}{3} = \frac{1}{6}$

(q) $\frac{x - 4}{5} - 3 = 4x$

(r) $\frac{3x - 6}{5} - 7x = \frac{7x + 1}{5} - 17$

(s) $\frac{2x - 3}{5} + 2x = -\frac{2 - x}{4} - 3$

(t) $\frac{4 - x}{5} + 3x + 2 = \frac{5x - 3}{3} + 2x + 12$

2. Find the real numbers a for which the following equation is an identity:

$$2(7x + 3) - 2a = 4(3x - 3) + 2x - 6$$

3. Find the real numbers a for which the following equation (in x) has no solutions.

$$3(2x - 5) = 6x + a$$

4. Find a and b if the following equation is an identity:

$$2(ax - 5) - 3 = 7x + b$$