

DUE Friday, September 12 at the beginning of class

1. Solve the quadratic equations, giving only the real solutions.

(a) $x^2 - 10x = -21$

(b) $h^2 + 14h - 2 = -51$

(c) $(y - 10)y + 10 = -6$

(d) $(g + 17)(g - 2) = 20$

(e) $-3v^2 = -v - 2$

(f) $(m - 4)^2 = 5$

(g) $(x + 11)^2 + 5 = 3$

2. Solve more quadratic equations, giving only the real solutions.

(a) $3p^2 + p = 0$

(b) $8x^2 - 5x = 1$

(c) $3m^2 - 2 = 5m$

3. Complete the square and give your answer in the form $a(x + b)^2 + c$

(a) $x^2 - 4x - 10$

(b) $x^2 - 8x - 1$

(c) $2x^2 - 5x - 1$

(d) $3x^2 + 5x - 6$

4. Solve the equations, giving all real solutions.

(a) $x^3 - 18 = 9x - 2x^2$

(b) $x^4 = 1$

(c) $x^3 = 13x^2 - 42x$

(d) $x^5 - x^3 - 8x^2 + 8 = 0$

(e) $(x^2 + x)^2 - 8(x^2 + x) + 12 = 0$

(f) $x^{-2} - 2x^{-1} - 35 = 0$

5. Solve the equations, giving all real solutions.

(a) $\frac{3}{x+3} - \frac{5}{x^2+3x} = \frac{1}{x}$

(b) $\frac{10}{x-5} + x = 1 + \frac{2x}{x-5}$

$$(c) \frac{a}{2a+1} - \frac{2a^2+5}{2a^2-5a-3} = \frac{3}{a-3}$$

$$(d) \frac{-18}{6n^2-n-1} + \frac{3n}{2n-1} = \frac{4n}{3n+1}$$

6. Solve the equations, giving all real solutions

$$(a) \sqrt{2x+31} + x = 2$$

$$(b) x = 3 + \sqrt{23-x}$$

$$(c) 3\sqrt[3]{x+3} = 2\sqrt[3]{2x+17}$$

7. Solve the inequality and give your answer in interval notation

$$(a) x^3 - 18 < 9x - 2x^2$$

$$(b) x^4 \geq 1$$

$$(c) 2x^4 - 3x^3 \leq 9x^2$$

$$(d) x^3 \leq 13x^2 - 42x$$

$$(e) x^6 - 3x^4 - 16x^2 + 48 > 0$$

8. Solve the inequality and give your answer in interval notation

$$(a) \frac{3}{x+3} - \frac{5}{x^2+3x} > \frac{1}{x}$$

$$(b) \frac{10}{x-5} + x \leq 1 + \frac{2x}{x-5}$$

$$(c) \frac{a}{2a+1} - \frac{2a^2+5}{2a^2-5a-3} < \frac{3}{a-3}$$

$$(d) \frac{-18}{6n^2-n-1} + \frac{3n}{2n-1} \geq \frac{4n}{3n+1}$$

$$(e) \frac{7}{p+2} - \frac{1}{p^2+5p+6} > -\frac{2}{p+3}$$