1. Write without parentheses:
   (a) \((a - b)^8 = 8a - 8\)
   (b) \(\frac{5}{2} (2x - 4y) = 5x + 10y\)

2. Express the following statements as inequalities:
   (a) \(t\) is less than 4: \(t < 4\)
   (b) \(x\) is less than \(\frac{1}{2}\) and greater than or equal to \(\frac{-1}{2}\): \(\frac{-1}{2} < x \leq \frac{1}{2}\)

3. Evaluate:
   (a) \((-6)^\frac{2}{3} = 6\sqrt[3]{-2} = 6\cdot(-1)^\frac{1}{3} = \sqrt[3]{6} \cdot 1 = \sqrt[3]{6}\)
   (b) \(\sqrt{4} - \frac{6}{2} = 2 - 3 = -1\)
   (c) \((-1)^1 \cdot \sqrt{1} = -1 \cdot 1 = -1\)

4. Simplify by expanding/ regrouping. Answer should have no negative exponents:
   (a) \((12x^2y^4)^{\frac{1}{2}} = \sqrt[2]{12x^2y^4} = \sqrt[2]{12} \cdot x \cdot y^2\)
   (b) \(\sqrt{\frac{x^2y^4z^2}{x^2y^3z}} = \sqrt{\frac{x^2y^4z^2}{x^2y^3z}} = \sqrt{xy\frac{z}{x}} = \sqrt{\frac{z^3}{x^3}}\)
   (c) \((x^5y^3z^{10})^{\frac{2}{3}} = \sqrt[3]{x^5y^3z^{10}} = x \cdot y \cdot z^3\)
   (d) \((x^2 + x - 2)(x^3 + x + 1) = (x^5 + x^3 + x^2) + (x^4 + x^2 + x) \cdot 2x^3 + 2x - 2 = x^5 + 3x^3 + x^2 + 3x - 2\)

5. Factor each expression completely:
   (a) \(2x^2 + 5x + 3 = (2x + 3)(x + 1)\)
   (b) \(y^4(y + 2)^3 + y^5(y + 2)^4 = y^4(y + 2)^3(1 + y(y + 2)) = y^4(y + 2)^3(y + 1^2)\)
   (c) \(x^4 + x^2 = 2 = (x^2 + 2)(x^2 - 1) = (x^2 + 2)(x - 1)(x + 1)\)
   (d) \(x^3 i 27 = (x + 3)(x^2 + 3x + 9)\)
   (e) \(y^3 i y^2 + y + 1 = y^2(y + 1) + (y + 1) = (y + 1)(y^2 + 1)\)
   (f) \(x^4 + 8xy = xy(x^3 + 8) = xy(x + 2)(x^2 - 2x + 4)\)
6. Simplify (rationalizing if necessary):

(a) \[
\frac{x^2 i x i 2}{x^2 i x i 1} = \frac{(x + 1)(x + 1)}{(x + 1)(x + 1)} = \frac{x i 2}{x i 1}
\]

(b) \[
\frac{p x + p x + 2}{2 x + 1} = \frac{p x + p x + 2}{2 x + 1}
\]

(c) \[
\frac{1}{a + h} + \frac{1}{a} = \frac{a i (a + h)}{(a + h) a}
\]

7. Solve the following equations:

(a) \[
\frac{1}{x} = \frac{4}{3x} + 1 \quad 3 = 4 + 3x \quad 3x = i \quad 1 \quad x = \boxed{i 1 = 3}
\]

(b) \[
(t i 4)^2 = (t + 4)^2 + 32 \quad t^2 i 8t + 16 = t^2 + 8t + 16 + 32 \quad i 16t = 32 \quad \boxed{t = i 2}
\]