

Solve all exercises. Staple them to this sheet.

1. Perform the indicated operations and simplify:

(a)  $-5(7-2) + 6(-1)^3 - 7(-6+4)^2 - 6 - (5-8)$

(b)  $6x^2 - 7 + x^2 + 3x - 3(x+1) - 3(x-1) + (x^2 + 2)^2$

(c)  $- \quad - \quad - \quad - \quad - \quad - \quad -$

(d)  $3(-7) + \left(-\frac{1}{6}\right)\left(\frac{9}{2}\right) - \left(\frac{2}{3} - \frac{4}{2}\right) + 4(3)^3 + \left(\frac{1}{2} \div \frac{2}{3}\right)$

(e)  $4x^2 + 3x - 5x + 2x - 4 + 3x^2$

2. Factor completely:

(a)  $8$

(d)  $x^2 + 6x - 27$

(b)  $x^2 + 7x + 10$

(e)  $4x^3 - 20x^2 - 24x$

(c)  $x^3 + 9x^2 - 10x$

3. Factor and simplify:

(a)  $\frac{x^2 - x - 2}{2x^3 + 4x^2 - 6x} \cdot \frac{x^2 + 4x - 5}{x^2 - 1} \div \frac{x^2 + 3x - 10}{3x^2 + 18x + 27}$

(b)  $\frac{x^2 + 3x - 4}{x^2 - 3x + 2} \cdot \frac{3x^3 - 12x}{2x^2 + 2x} \div \frac{9x^2 - 36}{x^2 - x - 2}$

4. Simplify:

(a)  $\frac{3^2 \cdot 2^3}{2^2 \cdot 4^3}$

(b)  $\left(\frac{490x^{-1}y^{-3}z^4}{35x^{-2}y^2z^{-4}}\right)^2$

0 0 1 116.76 cm1 438.67 403

$$(h) \sqrt[5]{\frac{3x}{125x^6y^2z^3}} \quad (i) \sqrt[3]{\frac{4x}{xy}}$$

7. Solve the following equations:

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

$$(b) \frac{-12}{3}(x + 3) + 4(x + 1) + 3x = -2x + 43 + 5x$$

$$(c) -4x^2 + 400 = 0$$

$$(d) x^2 - 11 = 67$$

$$(e) 2x^2 - 3x - 5 = 0$$

$$(f) 8x^2 + 7 - 15 = -7$$

(g)