

# EMT111 - Practice Problems II

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1. Factor the expression completely.

(a)  $6x^2 - 5x - 6$

(b)  $2x^3 + 4x^2 + x + 2$

(c)  $x^4 + 2x^3 - 3x^2$

2. Solve the equation for the indicated variable.

(a)  $P = 2l + 2w$ ; for  $w$

(b)  $\frac{ax+b}{cx+d} = 2$ ; for  $x$

(c)  $\frac{1}{s+a} + \frac{1}{s+b} = \frac{1}{c}$ ; for  $s$

3. Simplify.

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

(b)  $(x^{-5}y^3z^{10})^{-\frac{3}{5}}$

(c)  $\left(\frac{a^2b^{-3}}{x^{-1}y^2}\right)^3 \left(\frac{x^{-2}b^{-1}}{a^{\frac{3}{2}}y^{\frac{1}{3}}}\right)$

4. Graph each equation.

(a)  $x^2 + y^2 = 25$

(b)  $(x - 2)^2 + (y + 1)^2 = 25$

5. Find the equation of the circle that satisfies the given conditions.

(a) center  $(2, -1)$  ; radius 3

(b) center  $(-1, 5)$  ; passes through  $(-4, -6)$

6. Find the center and radius of the given circle.

(a)  $x^2 + y^2 - 2x + 4y + 1 = 0$

(b)  $x^2 + y^2 + 2x - 6y + 7 = 0$