

PR-2 Day 2 Homework

Wednesday, January 11, 2017
7:40 AM

CAT Homework PR-2 (Day 2) Polynomials & Factoring

Part 2: Simplifying Polynomial Expressions

Name Key

$$1. (3x-4)^2$$

$$= (3x-4)(3x-4)$$

$$= 9x^2 - 12x - 12x + 16$$

$$= 9x^2 - 24x + 16$$

$$2. (x+5)(x^2-7x+8)$$

$$x^3 - 7x^2 + 8x$$

$$5x^2 - 35x + 40$$

$$x^3 - 2x^2 - 27x + 40$$

$$3. \left(x^2 - 3^{\frac{1}{2}}\right) \left(x^2 - 3^{\frac{1}{2}}\right)$$

$$= x^4 - 3^{\frac{1}{2}}x^2 - 3^{\frac{1}{2}}x^2 + 3^1$$

$$= x^4 - 2x^2\sqrt{3} + 3$$

$$4. \frac{2y^2+6y}{4y+12}$$

$$= \frac{2y(y+3)}{4(y+3)}$$

$$= \frac{y}{2}$$

$$5. \frac{y^3+4y^2-21y}{y^2-49}$$

$$= \frac{y(y+7)(y-3)}{(y+7)(y-7)}$$

$$= \frac{y(y-3)}{(y-7)}$$

$$6. \frac{y^3+2y^2+4y}{y^3+2y^2} \cdot \frac{y^2-4}{y^3-8}$$

$$= \frac{y(y^2+2y+4)}{y^2(y+2)} \cdot \frac{(y+2)(y-2)}{(y-2)(y^2+2y+4)}$$

$$= \frac{1}{y}$$

$$7. \frac{7x-7y}{4y} \div \frac{14x-14y}{3y}$$

$$= \frac{7(x-y)}{4y} \cdot \frac{3y}{14(x-y)}$$

$$= \frac{3}{8}$$

$$8. \frac{x^2-y^2}{2xy} \cdot \frac{y^2-x^2}{4x^2y}$$

$$= \frac{(x+y)(x-y)}{2xy} \cdot \frac{-(x+y)(x-y)}{4x^2y}$$

$$= -2x$$

$$\left(\frac{x}{x}\right) \frac{5}{x^2+x-6} + \frac{-2 \cdot \frac{x(x+3)}{x(x+3)} \cdot 4}{x(x-2)} \cdot \frac{x+3}{x+3}$$

$$= \frac{5x}{x(x+3)(x-2)} + \frac{-2x^2-6x}{x(x+3)(x-2)} + \frac{4x+12}{x(x+3)(x-2)}$$

$$= \frac{-2x^2+3x+12}{x(x+3)(x-2)}$$

$$10. \frac{2 - \frac{13}{x+5}}{2 + \frac{3}{x-3}}$$

$$= \frac{2x+10-13}{x+5} \cdot \frac{x-3}{2x-6+3}$$

$$= \frac{2x-3}{x+5} \cdot \frac{x-3}{2x-3}$$

$$= \frac{x-3}{x+5}$$

$$11. \left(\frac{1}{a} + \frac{1}{b}\right) \left(\frac{ab}{ab}\right)$$

LCD: ab

$$= \frac{b+a}{b^2-a^2}$$

$$= \frac{b+a}{(b-a)(b+a)}$$

$$= \frac{1}{b-a}$$

$$= \frac{x-3}{x+5}$$

$$= \frac{1}{b-a}$$