

Subject: Math Revision WorksheetGrade: _____ Student's Name: _____ Date: Dec., 2025Educational Outcome: to reinforce understanding of previously learned mathematical concepts

1. Factorize the following:

$$a) 4m(m+3) - 5(m+3) \Rightarrow (m+3)(4m-5)$$

$$b) (3y+2)^2 - 16 \Rightarrow ((3y+2)+4)((3y+2)-4) \Rightarrow (3y+6)(3y-2)$$

$$c) 5a^2 - 20 \Rightarrow 5(a^2 - 4) \Rightarrow 5(a-2)(a+2)$$

$$d) 9p^2 - 6p + 1 \Rightarrow (3p-1)^2$$

2. Expand and simplify the following:

$$a) 6p(4q-3p) - 5q(3p+q) \Rightarrow 24pq - 18p^2 - 15qp - 5q^2 \Rightarrow$$

$$b) (3x+y)(2x-y) \Rightarrow 6x^2 - 3xy + 2xy - y^2 \Rightarrow 6x^2 + xy - y^2$$

$$c) (5a-3b)^2 \Rightarrow 25a^2 - 30ab + 9b^2$$

$$d) -2m(4n+6p) + 3p(5m-2n) \Rightarrow -8mn - 12pm + 15pm - 6np \Rightarrow -8mn + 3mp - 6pn$$

$$e) (6x-3y)(6x+3y) \Rightarrow 36x^2 - 9y^2$$

3. Simplify the following.

$$a) \frac{2x^2}{8x^3} \times \frac{3}{4x} \Rightarrow 6x^2$$

$$b) \frac{x^2-16}{2x} \div \frac{x-4}{x} \Rightarrow \frac{(x+4)(x-4)}{2x} \times \frac{x}{(x-4)} = \frac{x+4}{2}$$

$$c) \frac{x^2+2x}{x^2-4} \times \frac{x-2}{x+2} \Rightarrow \frac{x(x+2)}{(x+2)(x-2)} \times \frac{(x-2)}{(x+2)} = \frac{x}{x+2}$$

4. Solve the following equations.

$$a) \frac{3(2x-5)}{3} = \frac{21}{3} \Rightarrow (2x - \cancel{5}) = \frac{7}{+5} \Rightarrow \frac{2x}{2} = \frac{12}{2} \Rightarrow \boxed{x=6}$$

$$b) \frac{8}{-8} - 3(x+2) = \frac{5}{-8} \Rightarrow \frac{-3(x+2)}{-3} = \frac{-3}{-3} \Rightarrow x + \cancel{2} = \frac{1}{-2} \Rightarrow \boxed{x=-1}$$

$$c) \left(\frac{-x+1}{4} = \frac{2x-3}{8} \right) \Rightarrow -x+1 \times \frac{2}{2} = \frac{2x-3}{+2x} = \frac{-2x+2}{+2x} = \frac{2x-3}{+2x} \Rightarrow \frac{14x}{4} = \frac{5}{4} \Rightarrow \boxed{x=\frac{5}{4}}$$

$$d) \frac{5}{x+3} \times \frac{7}{x-2} \Rightarrow \frac{7x+21}{-5x-21} = \frac{5x-10}{-5x-21} \Rightarrow \frac{2x}{2} = \frac{-31}{2} \Rightarrow \boxed{x = -\frac{31}{2}}$$

5. Sarah earns \$20 for every hour she works. After working for a certain number of hours, she has earned \$400. How many hours did she work?

$$20x = 400 \Rightarrow \boxed{x=20h}$$

6. The area of a triangle is $\frac{2x^2+6x}{x+3}$, and its height is $\frac{x+2}{x+3}$. What is the base of the triangle?

$$A = \frac{1}{2} b h$$

$$\frac{2(x+3)}{(x+2)} \times \left(\frac{2x^2+6x}{x+3} \right) = \left(\frac{1}{2} \times \frac{x+2}{x+3} \times b \right) \times \frac{2(x+3)}{x+2} \Rightarrow b = \frac{2x^2+6x}{x+3} \times \frac{2(x+3)}{(x+2)}$$

$$b = \frac{2 \times 2x(x+3)}{(x+2)} \Rightarrow \frac{4x(x+3)}{(x+2)}$$