

أوجد LCM لكل مجموعة من كثيرات الحدود مما يأتي

$$12a^2b, 15abc, 8b^3c^3$$

$$12a^2b = 2^2 \cdot 3a^2 \cdot b$$

$$15abc = 3 \cdot 5abc$$

$$8b^3c^4 = 2^3 \cdot b^3 \cdot c^4$$

$$LCM: 2^3 \cdot 3 \cdot 5a^2b^3c^4 = 120a^2b^3c^4$$

1A

$$4a^2 - 12a - 16$$

$$4(a^2 - 3a - 4)$$

$$4(a + 1)(a - 4)$$

$$LMC: 4a(a + 1)(a - 4)(a - 5)$$

$$a^3 - 9a^2 + 20a$$

$$a(a^2 - 9a + 20)$$

$$a(a - 4)(a - 5)$$

1B

$$\frac{4}{5a^3b^2} + \frac{9c}{10ab}$$

$$8 + 9a^2bc$$

$$10a^3b^2$$

2A

$$\frac{3a^2}{16b^2} - \frac{8x}{5a^3b}$$

$$15a^5 - 128xb$$

$$80a^3b^2$$

2B

3A

$$\begin{aligned} & \frac{x-1}{x^2-x-6} - \frac{4}{5x+10} \\ & \frac{x-1}{(x-3)(x+2)} - \frac{4}{5(x+2)} \\ & = \frac{x-1}{5(x-1)} - \frac{4}{4(x-3)} \\ & = \frac{5(x-3)(x+2)}{5(x-3)(x+2)} - \frac{4(x+2)}{4(x-3)} \\ & = \frac{5x-5-4x+12}{5(x-3)(x+2)} = \frac{(x+7)}{5(x+2)(x+3)} \end{aligned}$$

3B

$$\begin{aligned} & \frac{x-8}{4x^2+21x+5} + \frac{6}{12x+3} = \frac{(x-8)}{(4x+1)(x+5)} + \frac{6}{3(4x+1)} \\ & = \frac{(x-8)}{(4x+1)(x+5)} + \frac{2}{(4x+1)} = \frac{(x-8)+2(x+5)}{(4x+1)(x+5)} \\ & = \frac{x-8+2x+10}{(4x+1)(x+5)} = \frac{(3x+2)}{(4x+1)(x+5)} \end{aligned}$$

4A

$$\frac{1 - \frac{y}{x}}{\frac{1}{y} + \frac{1}{x}} = \frac{\frac{x-y}{x}}{\frac{x+y}{xy}} = \frac{x-y}{x} \div \frac{x+y}{xy} = \frac{x-y}{x} \cdot \frac{xy}{x+y} = \frac{y(x-y)}{x+y}$$

$$\frac{\frac{c}{d} - \frac{d}{c}}{\frac{d}{c} + 2}$$

بسط العبارة

4B

$$\begin{aligned} \frac{\frac{c^2}{cd} - \frac{d^2}{cd}}{\frac{d}{c} + \frac{2c}{c}} &= \frac{\frac{c^2 - d^2}{cd}}{\frac{d + 2c}{c}} = \frac{c^2 - d^2}{cd} \div \frac{d + 2c}{c} \\ &= \frac{c^2 - d^2}{cd} \cdot \frac{c}{d + 2c} = \frac{c^3 - cd^2}{cd^2 + 2c^2 d} \\ &= \frac{c(c^2 - d^2)}{cd(d + 2c)} = \frac{(c^2 - d^2)}{d(d^2 + 2)} \end{aligned}$$

5A

$$\frac{1 + \frac{2}{x}}{\frac{3}{y} - \frac{4}{x}} = \frac{1 + \frac{2}{x}}{\frac{3}{y} - \frac{4}{x}} \cdot \frac{xy}{xy} = \frac{xy + 2y}{3x - 4y}$$

5B

$$\frac{\frac{1}{d} - \frac{d}{c}}{\frac{1}{c} + 6} = \frac{\frac{1}{d} - \frac{d}{c}}{\frac{1}{c} + 6} \cdot \frac{dc}{dc} = \frac{c - d^2}{d + 6cd}$$

5C

$$\frac{\frac{1}{y} + \frac{1}{x}}{\frac{1}{y} - \frac{1}{x}} = \frac{\frac{1}{y} + \frac{1}{x}}{\frac{1}{y} - \frac{1}{x}} \cdot \frac{xy}{xy} = \frac{x + y}{x - y}$$

5D

$$\frac{\frac{a}{b} + 1}{1 - \frac{b}{a}} = \frac{\frac{a}{b} + 1}{1 - \frac{b}{a}} \cdot \frac{ab}{ab} = \frac{a^2 + ab}{ab - b^2}$$