

1. B

2 a)

$$\frac{2}{2x-5y} - \frac{x}{x^2-xy-2y^2} + \frac{4y}{2x^2-9xy+10y^2}$$

B  
E  
D  
S  
A

①  $x^2 - xy - 2y^2$   
 $\underbrace{1x - 2 = -2}$   
 $x^2 - 2xy + xy - 2y^2$   
 $x(x-2y) + y(x-2y)$   
 $(x-2y)(x+y)$

②  $2x^2 - 9xy + 10y^2$   
 $\underbrace{2x \cdot 10 = 20}$   
 $2x^2 - 4xy - 5xy + 10y^2$   
 $2x(x-2y) - 5y(x-2y)$   
 $(x-2y)(2x-5y)$

$$\frac{2}{2x-5y} - \frac{x}{x^2-xy-2y^2} + \frac{4y}{2x^2-9xy+10y^2}$$

$$\frac{2(x+y)(x-2y)}{(x-2y)(x+y)(2x-5y)} - \frac{x(2x-5y)}{(x-2y)(x+y)(2x-5y)} + \frac{4y(x+y)}{(x-2y)(x+y)(2x-5y)}$$

$$\frac{2(x+y)(x-2y) - x(2x-5y) + 4y(x+y)}{(x-2y)(x+y)(2x-5y)}$$

$$\frac{2(x^2 - 2xy + 4x - 2y^2) - 2x^2 + 5xy + 4xy + 4y^2}{(x-2y)(x+y)(2x-5y)}$$

$$\frac{\cancel{2x^2} - 2xy - 4y^2 - \cancel{2x^2} + 9xy + 4y^2}{(x-2y)(x+y)(2x-5y)}$$

$$\frac{7xy}{(x-2y)(x+y)(2x-5y)}$$

or - good ol' number detached from variables  
 Like terms are terms with the same variable and the same exponent.

$ex$        $x^2$        $2x^2$   
 To add them, add their coefficients.

$$e + 5 + 2$$

$$e + 7$$

$$x^2 + 2x^2 = 3x^2$$

$$\frac{1}{4}e + \frac{1}{2}e^2$$

Q7

Bedmas tells you what operation to do first. You must do all 5 general steps before moving on to the next operations.

$$\left( \frac{e^2 - 25}{e - 5} + 2 - \frac{2e - 4d}{e} \right) \div \frac{2e^2 + 8de}{e^2 - 3e - 10}$$

Step 1: Factor

$$\left( \frac{(e+5)(e-5)}{(e-5)} + 2 - \frac{2(e-2d)}{e} \right)$$

Step 2: Simplify

$$\left( e + 5 + 2 - \frac{2(e-2d)}{e} \right)$$

Step 3

Do operation:

(i) LCD

$$\left( \frac{(e+7)e - 2(e-2d)}{1e} \right)$$

(ii)

add tops do the operation evaluate adding like terms

$$\left( \frac{e(e+7) - 2(e-2d)}{e} \right)$$

$$\left( \frac{e^2 + 7e - 2e + 4d}{e} \right)$$

Step 4

Factor?

NOT POSSIBLE

Step 5

NOT POSSIBLE

$$\left( \frac{e^2 + 5e + 4d}{e} \right) \div \frac{2e^2 + 8de}{e^2 - 3e - 10}$$

Step

(i) Factor

$$\frac{-10}{-5 \quad 2}$$

Only now can we move on to the next operation!

$$\left( \frac{e^2 + 5e + 4d}{e} \right) \div \frac{2e(e+4d)}{(e-5)(e+2)}$$

Step 3

Do operation

$$\left( \frac{e^2 + 5e + 4d}{e} \right) \times \frac{(e-5)(e+2)}{2e(e+4d)}$$

Step 2 simplify? can't

Step 4

Factor?

Already Done

$$\frac{(e^2 + 5e + 4d)(e-5)(e+2)}{2e^2(e+4d)}$$

Step 5

Simplify?

Do

$$\left[ \frac{a^2 + 5a + 6}{a + 2} - 1 - \frac{2a + 3}{a} \right] \times \frac{a^2 + 3}{a^4 - 9}$$

Do!

$$\frac{x}{-x^2 + x + 6} \div \left[ 1 - \frac{3 + x}{3 - x} \right]$$

Do!

$$\frac{8a + 4a^2}{8a - 2a^3} \div \left[ \frac{2a^2 + 7a + 5}{a^2 + 3a + 2} - \frac{a^2 - 9}{a^2 - a - 6} \right]$$

