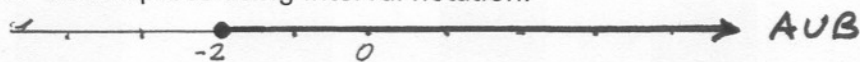
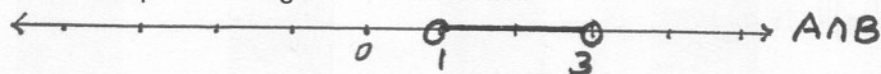


Find  $A \cup B$  and express using interval notation.



$$A \cup B = [-2, 3) \cup (1, \infty) = [-2, \infty)$$

Find  $A \cap B$  and express using interval notation.



$$A \cap B = (1, \infty) \cap [-2, 3) = (1, 3)$$

(10) 2. Simplify  $-\frac{3}{5} (20x^4 - 5y^2)$

$$= -\frac{3}{5} \cdot 20x^4 - \left(-\frac{3}{5}\right) 5y^2$$

$$= -12x^4 + 3y^2$$

$$= -3(4x^4 - y^2)$$

$$= -3(2x^2 + y)(2x^2 - y)$$

(10) 3. Simplify completely ( & leave no negative exponents) :

$$= \frac{(4x)^{-3} y^{-1/2}}{2^2 (x^2 y)^{3/2}} (8x^4 y)$$

$$= \frac{4^{-3} x^{-3} y^{-1/2} 8x^4 y}{2^2 (x^2)^{3/2} y^{3/2}}$$

$$= \frac{4^{-3} 8 x^{-3} x^4 y^{-1/2} y}{4 x^3 y^{3/2}}$$

$$= \frac{1}{32 x^2 y}$$

$$\frac{4^{-3} \cdot 8}{4} = \frac{8}{4^4} = \frac{2 \cdot 4}{4^3 \cdot 4} = \frac{2}{4^3} = \frac{2}{2^2 \cdot 4^2} = \frac{1}{16 \cdot 2} = \frac{1}{32}$$

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

$$\frac{y^{-1/2} y}{y^{3/2}} = \frac{y}{y^{4/2}} = \frac{y}{y^2} = \frac{1}{y}$$

(10) 4. Simplify (factor completely) (& leave no negative exponents) :

$$(x^{-1/2})^2 - 4 + 4x$$

$$x^{-1} - 4 + 4x = (x^{-1} - 4 + 4x) \cdot \frac{x}{x}$$

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

$$= \frac{(2x-1)(2x-1)}{x} \left. \vphantom{\frac{(2x-1)(2x-1)}{x}} \right\} \text{either OK.}$$

$$= \frac{1}{x} (2x-1)^2$$

(10) 5. Simplify completely (no negative exponents) :

$$\frac{\frac{b}{a} - \frac{a}{b}}{\frac{1}{a} + \frac{1}{b}} = \frac{\frac{b}{a} - \frac{a}{b}}{\frac{1}{a} + \frac{1}{b}} \cdot \frac{ab}{ab} \quad (ab \neq 0)$$

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

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

$$= b-a \quad \left( \begin{array}{l} \text{provided } b+a \neq 0 \text{ and } a \neq 0 + b \neq 0 \\ \text{i.e. } a \neq -b \end{array} \right)$$