

Nom : \_\_\_\_\_ /42 Date : \_\_\_\_\_

1. Écrit les radicaux sous forme composée (simplifiée).

/4

a)  $5\sqrt[3]{40x^4}$

$$5\sqrt[3]{8x^3 \cdot 5x}$$

$$= 10x\sqrt[3]{5x}$$

b)  $\sqrt{250n^4p^6}$

$$\sqrt{25n^4p^6 \cdot 10}$$

$$5n^2p^3\sqrt{10}$$

2. Exprime sous forme entière les radicaux composée (simplifiées)

/4

a)  $3x^3\sqrt{5x}$

$$\sqrt{(3x^3)^2 5x} = \sqrt{9x^6 5x} = \sqrt{45x^7}$$

b)  $2p^2\sqrt[3]{4}$

$$= \sqrt[3]{(2p^2)^3 \cdot 4}$$

$$= \sqrt[3]{32p^6}$$

3. Effectuer les calculs et simplifie les expressions.

$$2\sqrt{50x^3} = 2\sqrt{25x^2 \cdot 2x}$$

$$= 10x\sqrt{2x}$$

$$2\sqrt{50x^3} - \sqrt{24x} + \sqrt{54x} - \sqrt{18x^3}$$

$$-\sqrt{18x^3} = -3x\sqrt{2x}$$

$$-\sqrt{24x} = -2\sqrt{6x}$$

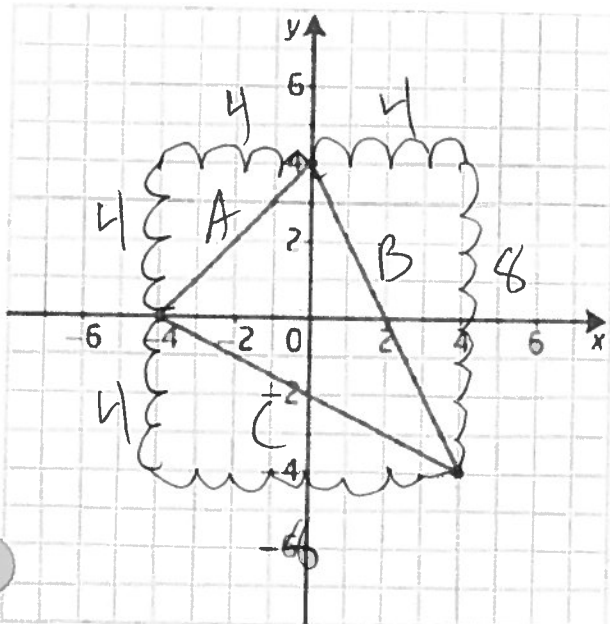
$$\sqrt{54x} = 3\sqrt{6x}$$

$$10x\sqrt{2x} - 2\sqrt{6x} + 3\sqrt{6x} - 3x\sqrt{2x}$$

$$= 7x\sqrt{2x} + \sqrt{6x}$$

4. Quel est le périmètre exact de ce triangle ?

/6



$$A^2 = 4^2 + 4^2$$

$$B^2 = 4^2 + 8^2$$

$$A^2 = 16 + 16$$

$$B^2 = 16 + 64$$

$$\sqrt{A^2} = \sqrt{32} = \sqrt{16 \cdot 2}$$

$$\sqrt{B^2} = \sqrt{80} = \sqrt{16 \cdot 5}$$

$$A = 4\sqrt{2}$$

$$B = 4\sqrt{5}$$

$$C^2 = 4^2 + 8^2$$

$$P = 4\sqrt{2} + 4\sqrt{5} + 4\sqrt{5}$$

$$C^2 = 16 + 64$$

$$P = 4\sqrt{2} + 8\sqrt{5}$$

$$\sqrt{C^2} = \sqrt{80} = 4\sqrt{5}$$

$$\sqrt{50} = \sqrt{25 \cdot 2}$$

5. Rationalise.

$$a) \frac{4}{2\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = \frac{4\sqrt{5}}{10} = \frac{2\sqrt{5}}{5}$$

$$b) \frac{3+\sqrt{5}}{2-\sqrt{10}} \cdot \frac{2+\sqrt{10}}{2+\sqrt{10}}$$

$$\frac{6 + 3\sqrt{10} + 2\sqrt{5} + \sqrt{50}}{4 - 10}$$

$$\frac{6 + 3\sqrt{10} + 2\sqrt{5} + 5\sqrt{2}}{-6}$$

$$= \frac{6 + 3\sqrt{10} + 2\sqrt{5} + 5\sqrt{2}}{-6}$$

$$\text{ou } \frac{-6 - 3\sqrt{10} - 2\sqrt{5} - 5\sqrt{2}}{6}$$

$$c) \frac{3\sqrt{6}-2}{1-3\sqrt{5}} \cdot \frac{1+3\sqrt{5}}{1+3\sqrt{5}}$$

$$\frac{3\sqrt{6} + 9\sqrt{30} - 2 - 6\sqrt{5}}{1 - 9 \cdot 5}$$

$$= \frac{3\sqrt{6} + 9\sqrt{30} - 6\sqrt{5} - 2}{-44} \text{ ou } \frac{-3\sqrt{6} - 9\sqrt{30} + 6\sqrt{5} + 2}{44}$$

6. Résous algébriquement. Détermine les restrictions.

$$a) \sqrt{2x-1} + 3 = 6$$

$$(\sqrt{2x-1})^2 = (3)^2$$

$$2x-1 = 9$$

$$\frac{2x}{2} = \frac{10}{2}$$

$$x = 5$$

ver  $\sqrt{2(5)-1} + 3 = 6$   
 $3 + 3 = 6 \checkmark$

$$b) \sqrt{y-3} = (y-3)^{2/5}$$

$$-\sqrt{y-3} + 3 = y^2 - 6y + 9$$

$$0 = y^2 - 7y + 12$$

$$0 = (y-4)(y-3)$$

$$y = 4$$

$$y = 3$$

(ver)

$$\sqrt{4-3} = 4-3$$

$$1 = 1 \checkmark$$

$$\sqrt{3-3} = 3-3$$

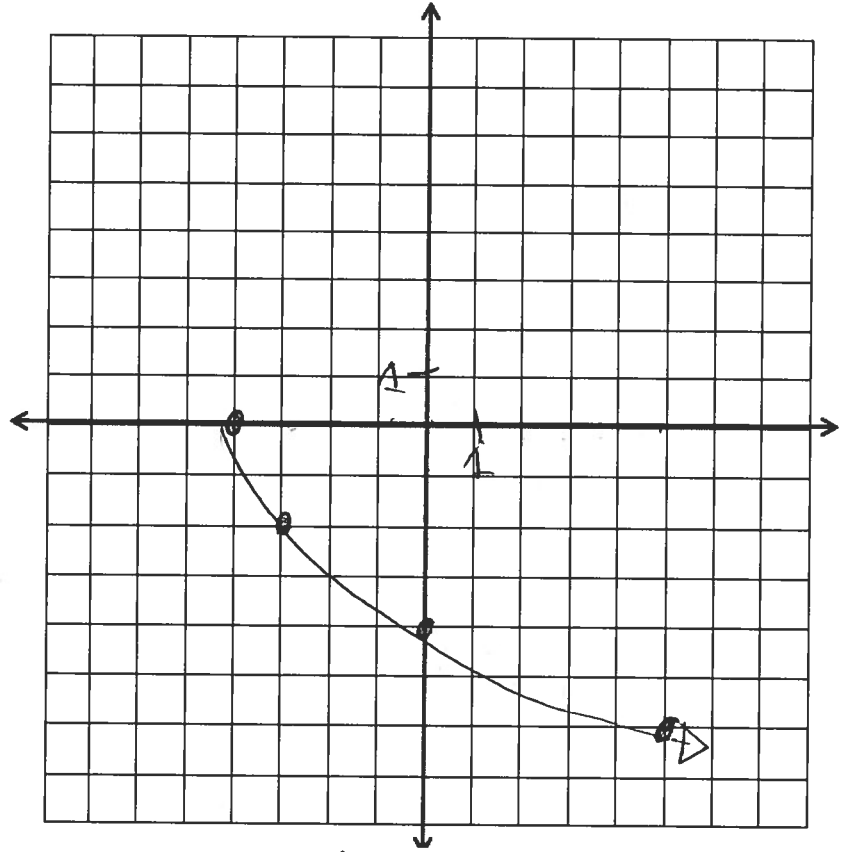
$$0 = 0 \checkmark$$

7. Trace le graphique de chaque fonction radicale. /5

a)  $f(x) = -2\sqrt{x+4}$

$$\begin{array}{l|l} \sqrt{x} & -2\sqrt{x+4} \\ (x,y) & \rightarrow (x-4, -2y) \end{array}$$

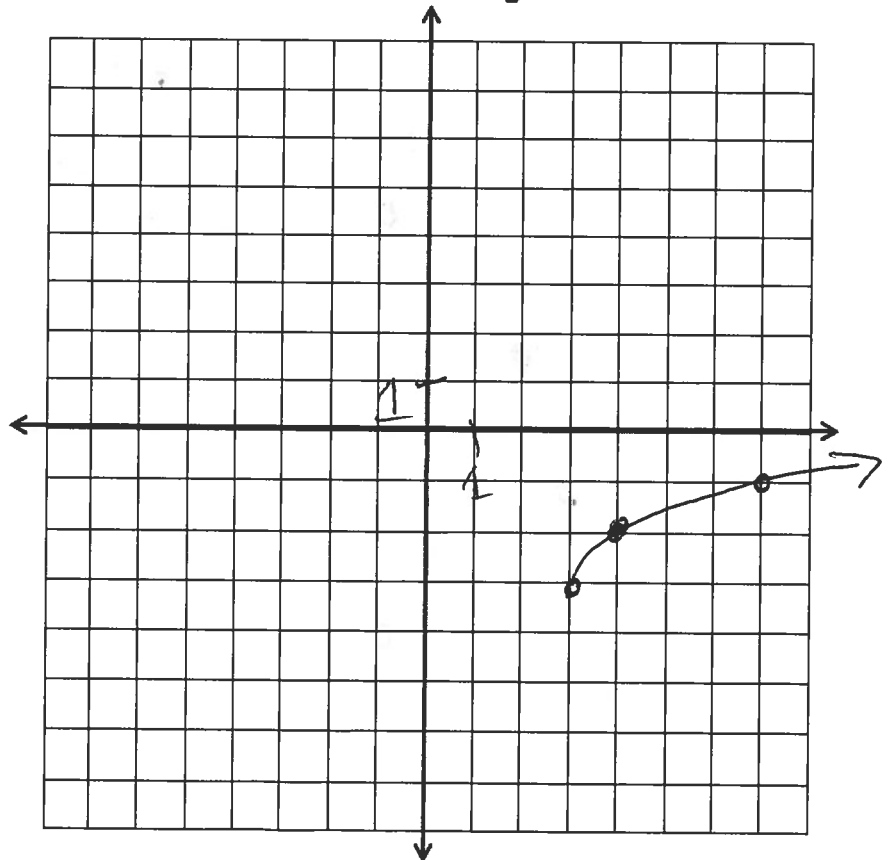
$$\begin{array}{l} (0,0) \rightarrow (-4,0) \\ (1,1) \rightarrow (-3,-2) \\ (4,2) \rightarrow (0,-4) \\ (9,3) \rightarrow (5,-6) \end{array}$$



b)  $f(x) = \sqrt{x-3} - 3$

$$\begin{array}{l|l} \sqrt{x} & \sqrt{x-3} - 3 \\ (x,y) & \rightarrow (x+3, y-3) \end{array}$$

$$\begin{array}{l} (0,0) \rightarrow (3,-3) \\ (1,1) \rightarrow (4,-2) \\ (4,2) \rightarrow (7,-1) \\ (9,3) \rightarrow (12,0) \end{array}$$



8. Résous graphiquement /8

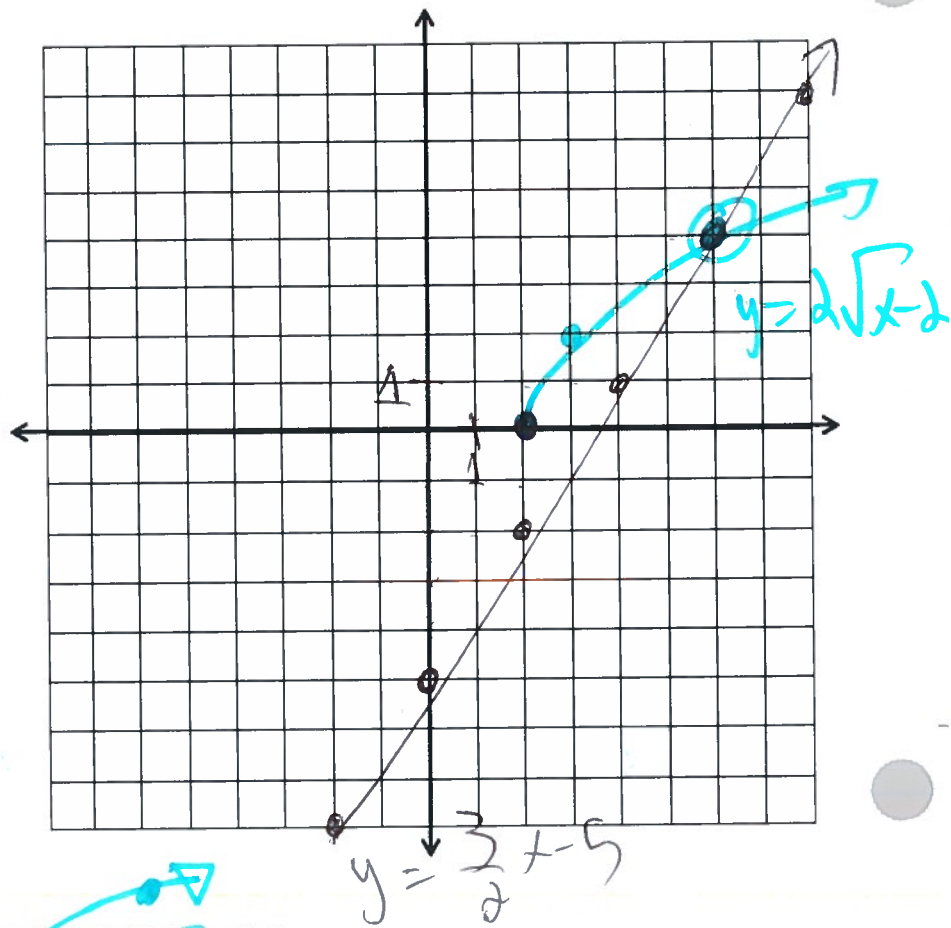
a)  $2\sqrt{x-2} = \frac{3}{2}x - 5$

$(x+2, 2y)$

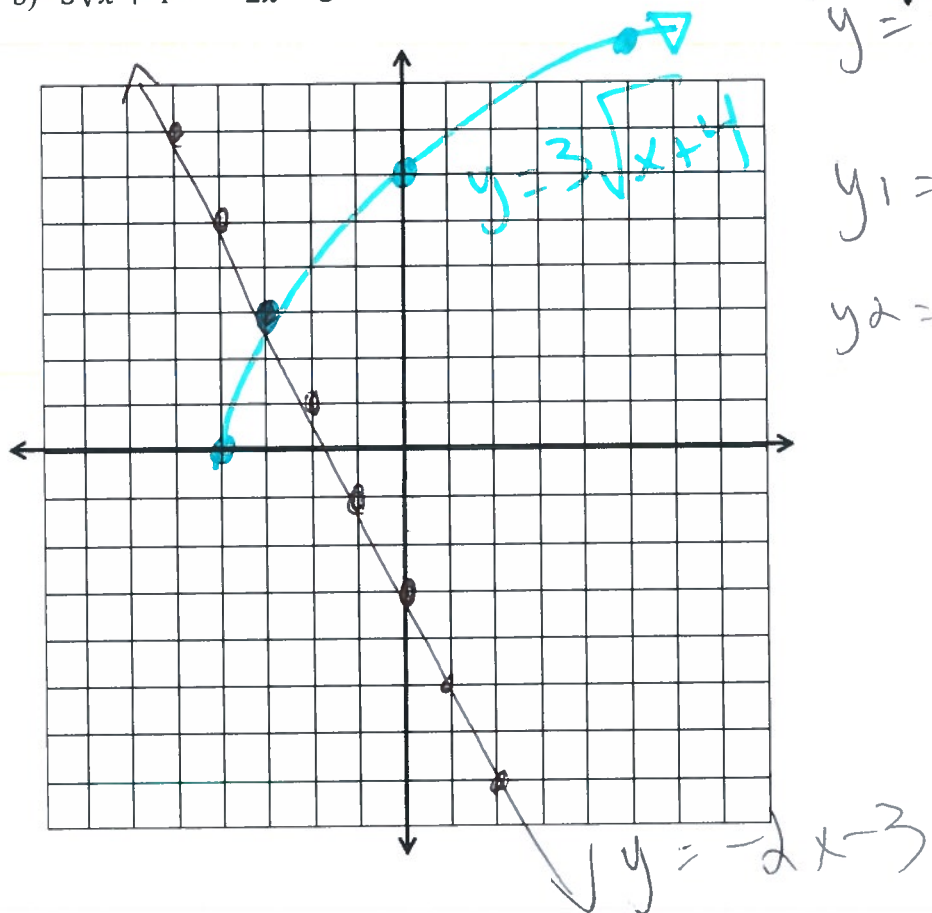
$y_1 = \frac{3}{2}x - 5$

$y_2 = 2\sqrt{x-2}$

$x = 6$



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



$y_1 = -2x - 3$

$y_2 = 3\sqrt{x+4}$

$(x-4, 3y)$