

17/01/20

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Ex 1

$$A = 3\sqrt{50} = 3\sqrt{25 \times 2} = 3 \times 5\sqrt{2} = \boxed{15\sqrt{2}}$$

$$B = \sqrt{8} + \sqrt{2} = \sqrt{4 \times 2} + \sqrt{2} = 2\sqrt{2} + \sqrt{2} = \boxed{3\sqrt{2}}$$

$$\begin{aligned} C &= 3\sqrt{5}(2\sqrt{3} + \sqrt{5}) \\ &= 3\sqrt{5} \times 2\sqrt{3} + 3\sqrt{5} \times \sqrt{5} \\ &= 6\sqrt{15} + 3 \times 5 = \boxed{6\sqrt{15} + 15} \end{aligned}$$

$$\begin{aligned} D &= (2\sqrt{3} - 2)^2 = (2\sqrt{3})^2 - 2 \times 2\sqrt{3} \times 2 + 2^2 \\ &= 12 - 8\sqrt{3} + 4 = \boxed{16 - 8\sqrt{3}} \end{aligned}$$

Ex 2

1) $[-7, 7]$

2) 0

3) 3

4) a) $S = \{-7, -2, 3\}$

b) $S = [-1, 1]$

c) $S =]-6; 4[\cup]4; 7]$

Ex 3

un antécédent

-2 6

$A(-2, 6)$

-2 $f(x) = 6$

$y = f(x)$

$f(3) = 4$

Ex 4 $f(x) = \frac{3-x}{1+2x}$ pour $x \neq -\frac{1}{2}$

1) Image de $\frac{1}{3}$

$$f\left(\frac{1}{3}\right) = \frac{3 - \frac{1}{3}}{1 + 2 \times \frac{1}{3}} = \frac{\frac{8}{3}}{1 + \frac{2}{3}} = \frac{\frac{8}{3}}{\frac{5}{3}} = \frac{8}{3} \times \frac{3}{5} = \boxed{\frac{8}{5}}$$

2) Antécédents de 4

$$f(x) = 4$$

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

$$\Leftrightarrow 3-x = 4(1+2x)$$

$$\Leftrightarrow 3-x = 4 + 8x$$

$$\Leftrightarrow -x = 4 + 8x - 3$$

$$\Leftrightarrow -x - 8x = 1$$

$$\Leftrightarrow -9x = 1$$

$$\Leftrightarrow \boxed{x = -\frac{1}{9}}$$

Ex 5

1) Prix pour 10 personnes.

$$800 + 10 \times 160 = 800 + 1600 = \boxed{2400}$$

Reponse $\boxed{2400 \text{ €}}$

2) def Prix(N):

if $N < 6$:

$$p = 800 + N * 200.$$

else:

$$p = 800 + N * 160.$$

return(p)

Ex 6

1) $f(2,3)$

$$c = 2^2 + 2 \times 3 = 4 + 6 = 10.$$

donc $f(2,3)$ retourne $\boxed{10}$

2) $g(2,3)$

$$d = f(2,3) = 10$$

$$e = f(3,2) = 3^2 + 3 \times 2 = 9 + 6 = 15$$

$$h = d + e = 10 + 15 = 25$$

donc $\boxed{g(2,3) = 25}$

3) $g(3,0) = 9 = 3^2 = (3+0)^2$

$$g(5,1) = 36 = 6^2 = (5+1)^2$$

$$g(1,7) = 64 = 8^2 = (1+7)^2$$

$$g(4,1) = 25 = 5^2 = (4+1)^2$$

a) Conjecture $\boxed{g(a,b) = (a+b)^2}$

b) Preuve de la conjecture :

$$g(a,b)$$

$$d = f(a,b) = c = a^2 + ab.$$

$$e = f(b,a) = c = b^2 + ba$$

$$h = d + e = a^2 + ab + b^2 + ab$$

$$= a^2 + 2ab + b^2$$

$$= (a+b)^2$$

$$\text{donc } g(a,b) = (a+b)^2$$

la conjecture est donc vérifiée.