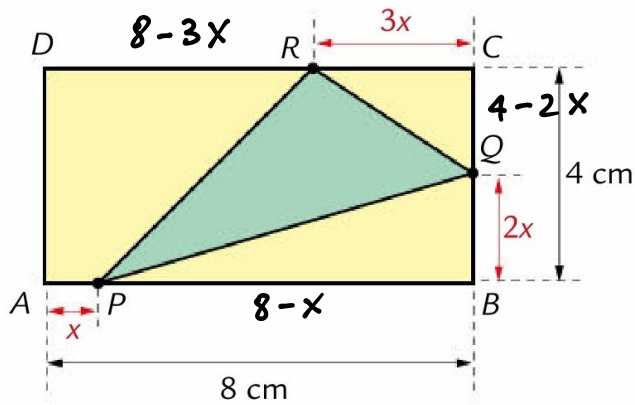


13/12/2021

697 Sapendo che $AB = 8$ cm e $BC = 4$ cm, determina x in modo che l'area del triangolo colorato in verde in figura sia 10 cm².



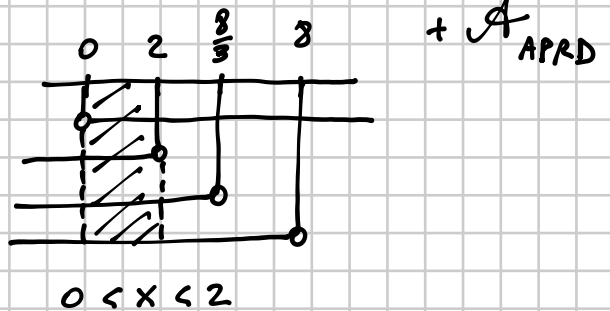
$$\begin{aligned} A_{\text{PARTE GIALLA}} &= 4 \cdot 8 - 10 \\ &= 32 - 10 \\ &= 22 \end{aligned}$$

$$\left[1 \text{ cm} \vee \frac{3}{2} \text{ cm} \right]$$

$$A_{\text{PARTE GIALLA}} = A_{\text{PBR}} + A_{\text{RCR}} + A_{\text{APRD}}$$

Dal disegno si vede che

$$\begin{cases} x > 0 \\ 8-x > 0 \\ 4-2x > 0 \\ 8-3x > 0 \end{cases} \quad \begin{cases} x > 0 \\ -x > -8 \\ -2x > -4 \\ -3x > -8 \end{cases} \quad \begin{cases} x > 0 \\ x < 8 \\ x < 2 \\ x < \frac{8}{3} \end{cases}$$



$$A_{\text{PBR}} = \frac{1}{2} (8-x) \cdot 2x \quad A_{\text{RCR}} = \frac{1}{2} \cdot 3x \cdot (4-2x) \quad A_{\text{APRD}} = \frac{1}{2} (x+8-3x) \cdot 4$$

$$(8-x) \cdot x + \frac{3}{2} x \cdot 2(2-x) + 2(8-2x) = 22$$

$$8x - x^2 + 6x - 3x^2 + 16 - 4x - 22 = 0$$

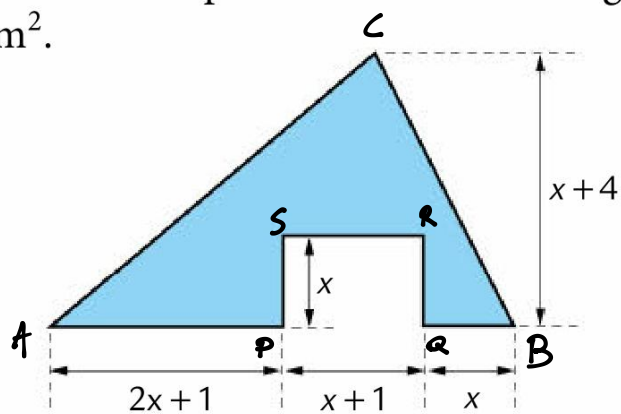
$$-4x^2 + 10x - 6 = 0$$

$$2x^2 - 5x + 3 = 0 \quad \Delta = 25 - 24 = 1$$

$$x = \frac{5 \pm 1}{4} = \begin{cases} 1 \\ \frac{6}{4} = \frac{3}{2} \end{cases}$$

$$\boxed{x = 1 \vee x = \frac{3}{2}}$$

696 Determina x sapendo che l'area della figura colorata è 24 cm^2 .



[2 cm]

$$A_{ABC} - A_{PQRS} = 24$$

$$\frac{1}{2} [(2x+1) + (x+1) + x] \cdot (x+4) - x(x+1) = 24$$

$$\frac{1}{2} \begin{matrix} \cancel{x(2x+1)} \\ (4x+2)(x+4) \end{matrix} - x^2 - x - 24 = 0$$

$$2x^2 + 8x + \cancel{x} + 4 - x^2 - \cancel{x} - 24 = 0$$

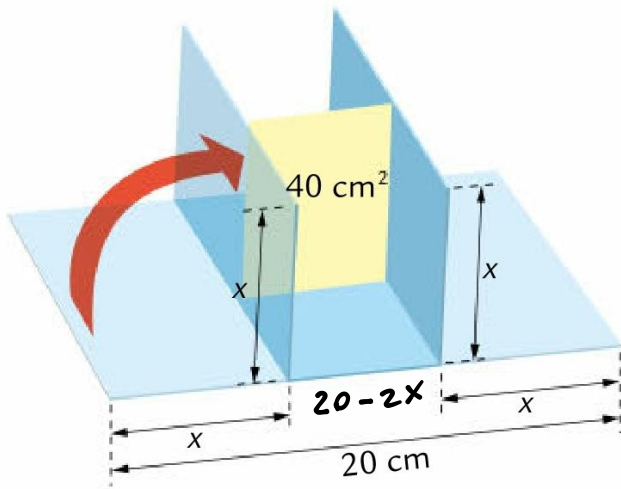
$$x^2 + 8x - 20 = 0 \quad \Delta = 16 + 20 = 36$$

$$x = -4 \pm 6 = \begin{cases} 2 \\ -10 \text{ N.A.} \end{cases}$$

$$\boxed{x = 2}$$

699 Una grondaia viene costruita a partire da lastre di alluminio aventi la larghezza di 20 cm. I bordi vengono ripiegati in modo da formare con la lastra degli angoli retti, come mostrato in figura. Determina l'altezza della grondaia, in modo che la sua sezione rettangolare abbia un'area di 40 cm^2 . Arrotonda le soluzioni ai decimi.

[2,8 cm \vee 7,2 cm]



$$0 < x < 10$$

$$(20 - 2x) \cdot x = 40$$

$$20x - 2x^2 - 40 = 0$$

$$x^2 - 10x + 20 = 0$$

$$\frac{\Delta}{4} = 25 - 20 = 5$$

$$x = 5 \pm \sqrt{5} = \begin{cases} 7,23... \approx 7,2 \\ 2,76... \approx 2,8 \end{cases}$$

7,2 cm \vee 2,8 cm

277

$$\frac{9x+2}{3x^2-2x-8} = \frac{5}{2} - \frac{7}{3x^2+x-4}$$

$$\left[\frac{6}{5}; 3 \right]$$

$$\downarrow$$

$$p = -24 \quad -6, 4$$

$$s = -2$$

$$\downarrow$$

$$p = -12 \quad 4, -3$$

$$s = 1$$

C.E.

$$3x^2 - 6x + 4x - 8$$

$$3x^2 - 3x + 4x - 4$$

$$x \neq 1 \quad x \neq 2$$

$$3x(x-2) + 4(x-2)$$

$$3x(x-1) + 4(x-1)$$

$$x \neq -\frac{4}{3}$$

$$(x-2)(3x+4)$$

$$(x-1)(3x+4)$$

$$\frac{2(x-1)(9x+2)}{2(x-2)(3x+4)(x-1)} = \frac{5(x-2)(3x+4)(x-1) - 14(x-2)}{2(x-2)(3x+4)(x-1)}$$

$$2 \left(9x^2 + \overbrace{2x - 9x}^{-7x} - 2 \right) = 5(3x^2 - 2x - 8)(x-1) - 14x + 28$$

$$18x^2 - 14x - 4 = 5(3x^3 - 3x^2 - 2x^2 + 2x - 8x + 8) - 14x + 28$$

$$18x^2 - 4 = 5(3x^3 - 5x^2 - 6x + 8) + 28$$

$$18x^2 - 4 = 15x^3 - 25x^2 - 30x + 40 + 28$$

$$15x^3 - 43x^2 - 30x + 72 = 0$$

DIVISORI T. Noz = $\pm 1 \pm 2 \pm 3 \dots$

Prova...

$$3 \mapsto 15 \cdot 3^3 - 43 \cdot 3^2 - 30 \cdot 3 + 72 = 0$$

RUFFINI

3 è soluzione!

$$\begin{array}{r|rrrr} 15 & -43 & -30 & 72 \\ 3 & & 45 & 6 & -72 \\ \hline & 15 & 2 & -24 & // \end{array}$$

$$(15x^2 + 2x - 24)(x-3) = 0$$

$$(15x^2 + 2x - 24)(x - 3) = 0$$

$$15x^2 + 2x - 24 = 0 \quad \frac{\Delta}{4} = 1 + 24 \cdot 15 = 1 + 360 = 361 = 19^2$$

$$x = \frac{-1 \pm 19}{15} = \begin{cases} -\frac{20}{15} = -\frac{4}{3} \text{ N.A. per C.E.} \\ \frac{18}{15} = \frac{6}{5} \end{cases}$$

$$\boxed{x = 3 \vee x = \frac{6}{5}}$$