

FICHA AVALIAÇÃO NOVEMBRO 2016

$$1) a) 2\sqrt{45} - 2\sqrt{5} + \sqrt{720} =$$

$$= 2 \times 3 \sqrt{5} - 2\sqrt{5} + 12\sqrt{5} =$$

$$= 6\sqrt{5} - 2\sqrt{5} + 12\sqrt{5}$$

$$= 16\sqrt{5}$$

$$\begin{array}{r} 45 \overline{) 3} \\ 15 \overline{) 3} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$45 = 3^2 \times 5$$

$$\sqrt{45} = \sqrt{3^2 \times 5}$$

$$= 3\sqrt{5}$$

$$\begin{array}{r} 720 \overline{) 2} \\ 360 \overline{) 2} \\ 180 \overline{) 2} \\ 90 \overline{) 2} \\ 45 \overline{) 3} \\ 15 \overline{) 3} \\ 5 \overline{) 5} \\ 1 \end{array}$$

$$720 = 2^2 \times 2^2 \times 3^2 \times 5$$

$$\sqrt{720} = \sqrt{2^2 \times 2^2 \times 3^2 \times 5}$$

$$= 12\sqrt{5}$$

$$b) (\sqrt{2} - 3\sqrt{13})(\sqrt{2} + 3\sqrt{13}) =$$

$$= \sqrt{2}^2 - (3\sqrt{13})^2 =$$

$$= 2 - 9\sqrt{13}^2 =$$

$$= 2 - 9 \times 13 =$$

$$= 2 - 117 =$$

$$= -115$$

c. NOTAÇÃO

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

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

$$c) (3 - \sqrt{7})^2 + \sqrt{7} =$$

$$= 9 - 2 \times 3 \times \sqrt{7} + \sqrt{7}^2 + \sqrt{7} =$$

$$= 9 - 6\sqrt{7} + 7 + \sqrt{7} =$$

$$= 16 - 5\sqrt{7}$$

$$d) 3\pi \times \left(2 + \frac{\sqrt{10}}{\pi}\right) - 6\pi =$$

$$= \cancel{6\pi} + \frac{3\pi\sqrt{10}}{\pi} - \cancel{6\pi} =$$

$$= 3\sqrt{10}$$

2) A. $-\sqrt{18}$

3) $N = \text{entre } 2,6 \text{ e } 2,7$

Podemos ver $2,61 = \frac{261}{100}$

4 a) $P = 2 \times 11\sqrt{7} + 2 \times 10\sqrt{20} =$
 $= 22\sqrt{7} + 20\sqrt{20}$

b) $\sqrt{7} \approx 2,645751311\dots$ $\sqrt{20} = 4,472135955\dots$
 $\approx 2,64$ $= 4,47$

$22 \times 2,64 + 20 \times 4,47 = 58,08 + 89,40 = 147,08 \text{ cm}$

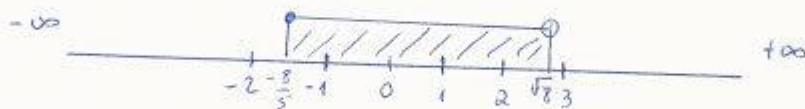
c) $11\sqrt{7} \times 10\sqrt{20} = 110\sqrt{140}$

d) $\sqrt{140} = 11,83215957\dots$

$11,832 < \sqrt{140} < 11,833$

$1301,520 < 110\sqrt{140} < 1301,630$

5.

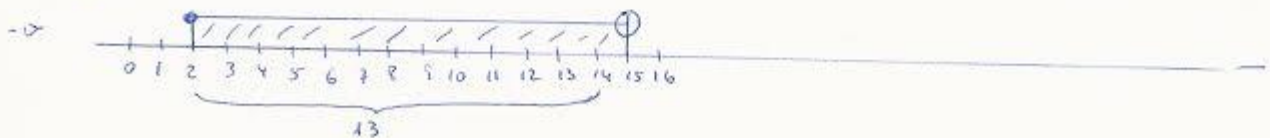


5.1. a) -1

b) $-\sqrt{2}$

5.2. D $\left\{-\frac{7}{5}; \frac{1}{3}; \frac{141}{50}\right\}$

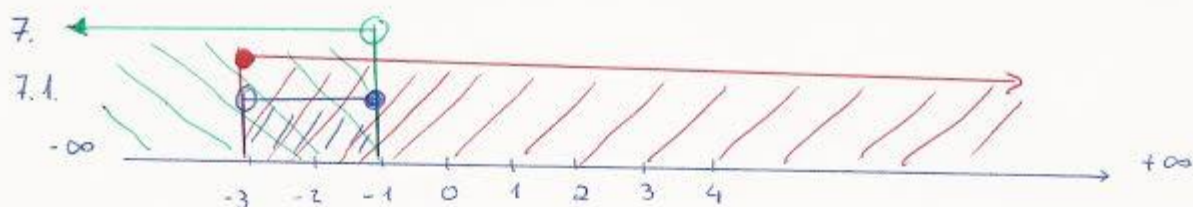
6.



$5m = 15 \Rightarrow$

$\Rightarrow m = \frac{15}{5} \Rightarrow$

$\Rightarrow m = 3$



$$7.2. a) C \cap E =]-3; -1[$$

$$b) C \cup E =]-\infty; -1]$$

$$c) D \cap E =]-3; -1]$$

8

$$a) 3x + 2 > 8 \quad (=:)$$

$$(=:) 3x > 8 - 2 \quad (=:)$$

$$(=:) 3x > 6 \quad (=:)$$

$$(=:) x > \frac{6}{3} \quad (=:)$$

$$(=:) x > 2$$

$$]2; +\infty[$$

$$b) 6(x + 2) < x - 8 \quad (=:)$$

$$(=:) 6x + 12 < x - 8 \quad (=:)$$

$$(=:) 6x - x < -12 - 8 \quad (=:)$$

$$(=:) 5x < -20 \quad (=:)$$

$$(=:) x < -\frac{20}{5} \quad (=:)$$

$$(=:) x < -4$$

$$]-\infty; -4[$$

$$c) \frac{6 - x}{5} \leq \frac{3}{1(x)} \quad (=:)$$

$$(=:) 6 - x \leq 15 \quad (=:)$$

$$(=:) -x \leq 15 - 6 \quad (=:)$$

$$(=:) -x \leq 9 \quad (=:)$$

$$(=:) x \geq -9$$

$$[-9; +\infty[$$

$$d) x - \frac{1 - 7x}{2} \geq 8 \quad (=:)$$

$$(=:) \frac{x}{1(x)} - \frac{1}{2} + \frac{7x}{2} \geq \frac{8}{1(x)} \quad (=:)$$

$$(=:) 2x - 1 + 7x \geq 16 \quad (=:)$$

$$(=:) 9x \geq 16 + 1 \quad (=:)$$

$$(=:) x \geq \frac{17}{9}$$

$$\left[\frac{17}{9}; +\infty\right[$$

$$9.) \quad 9 - x \geq 8 \quad \wedge \quad \frac{3x}{4} > -\frac{3}{1(x4)} \quad (\Rightarrow)$$

$$\Leftrightarrow -x \geq 8 - 9 \quad \wedge \quad 3x > -12 \quad (\Rightarrow)$$

$$\Leftrightarrow -x \geq -1 \quad \wedge \quad x > -\frac{12}{3} \quad (\Rightarrow)$$

$$\Leftrightarrow x \leq 1 \quad \wedge \quad x > -4$$

$$]-\infty; 1] \quad \cap \quad]-4; +\infty[=]-4; 1]$$

R: 1

10)

10.1) PREÇO SUMO $\rightarrow x$

PREÇO TOSTA $\rightarrow 2x$

$$x + 2x \leq 2,57$$

10.2)

$$3x < 2,57$$

$$x < \frac{2,57}{3}$$

$$x < 0,85(6)$$

$$R: 0,85 \text{ €}$$

11)



$$P < 80 \quad \wedge \quad A > 100$$

$$2x + 2 \times 20 < 80 \quad \wedge \quad 20x > 100 \quad (\Rightarrow)$$

$$\Leftrightarrow 2x + 40 < 80 \quad \wedge \quad x > \frac{100}{20} \quad (\Rightarrow)$$

$$\Leftrightarrow 2x < 80 - 40 \quad \wedge \quad x > 5 \quad (\Rightarrow)$$

$$\Leftrightarrow x < \frac{40}{2} \quad \wedge \quad x > 5 \quad (\Rightarrow)$$

$$\Leftrightarrow x < 20 \quad \wedge \quad x > 5$$

$$]-\infty; 20[\quad \cap \quad]5; +\infty[=]5; 20[$$

ESTADÍSTICA E PROBABILIDADES

1)
1.1)

1; 1; 1; 1; 1; 1; 2; 2; 2; 2; 3; 3

$$\tilde{x} = \frac{1+2}{2} = \frac{3}{2} = 1,5$$

1.2)

x	1	2	3
1	///	(2)	3
2	(2)	///	(6)
3	3	(6)	///

$$CP = 6$$

$$CF = 4$$

$$P(PAR) = \frac{4}{6} = \frac{2}{3}$$

2.

2.1.

$$\bar{x} = \frac{5 \times 13 + 40 \times 14 + 25 \times 15 + 10 \times 16}{5 + 40 + 25 + 10} = \frac{1160}{80} = 14,5$$

2.2.

ALUNO MENOS, 15 ANOS $CP = 5 + 40 = 45$

$$CF = 5$$

$$P = \frac{5}{45} = \frac{1}{9}$$