

PARCIAL NRO ① CÁLCULO - CURSADO VERANO - GIANLUCA CARLINI

$$① (3x^2 - 5x - 2) \cdot (-3x + 12) = 0$$

$$3x^2 - 5x - 2 = 0 \vee -3x + 12 = 0$$

$$a=3 \quad b=-5 \quad c=-2$$

$$-3x = -12$$

$$x_{1,2} = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$3x = 12$$

$$x_{1,2} = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-2)}}{2(3)}$$

$$x = \frac{12}{3}$$

$$x = 4$$

$$x_{1,2} = \frac{5 \pm \sqrt{25 + 24}}{6}$$

$$x_{1,2} = \frac{5 \pm 7}{6}$$

$$x_1 = \frac{5+7}{6} = 2$$

$$x_2 = \frac{5-7}{6} = -\frac{2}{6}$$

$$S = \left\{ -\frac{1}{3}; 2; 4 \right\}$$

$$② \frac{2x - 12}{4x - 16} \geq 0$$

$$(2x - 12 \geq 0 \wedge 4x - 16 > 0) \vee (2x - 12 \leq 0 \wedge 4x - 16 < 0)$$

$$2x \geq 12 \wedge 4x > 16$$

$$2x \leq 12 \wedge 4x < 16$$

$$x \geq \frac{12}{2} \wedge x > \frac{16}{4}$$

$$x \leq \frac{12}{2} \wedge x < \frac{16}{4}$$

$$x \geq 6 \wedge x > 4$$

$$x \leq 6 \wedge x < 4$$



$$S = [6, +\infty)$$

$$S = (-\infty, 4)$$

$$S = (-\infty; 4) \cup [6; +\infty)$$

C: NO HAY CIRCUNFERENCIA

$$5) a) (1-3i) \cdot (4+2i) =$$

$$4+2i-12i-6i^2 =$$

$$4-10i-6i^2 =$$

$$4-10i-6(-1) =$$

$$\boxed{10-10i}$$

$$b) \frac{2+4i}{5-i} = \frac{(2+4i) \cdot (5+i)}{(5-i) \cdot (5+i)} = \frac{10+2i+20i+4i^2}{(5)^2-(i)^2} = \frac{10+22i-4}{25-i^2} = \frac{6+22i}{26} =$$

$$\frac{6}{26} + \frac{22}{26}i = \boxed{\frac{3}{13} + \frac{11}{13}i}$$

$$c) [3(\cos(40^\circ) + i \sin(40^\circ))]^4 =$$

$$81[\cos(5 \cdot 40^\circ) + i \sin(5 \cdot 40^\circ)] =$$

$$\boxed{81(\cos 200^\circ + i \sin 200^\circ)} =$$

$$d) \frac{14(\operatorname{cis}(80^\circ))}{7(\operatorname{cis}(30^\circ))} =$$

$$\frac{14}{7}(\operatorname{cis}(80^\circ - 30^\circ)) =$$

$$\boxed{\frac{14}{7} \operatorname{cis}(50^\circ)}$$