

$$6x - 4 = -12 \Rightarrow 4 = \frac{-2}{x} - 0$$

$$3x - 2y = 7 \dots (2)$$

$$3x - 2\left(\frac{-2}{x}\right) = 7$$

$$3x + \frac{4}{x} = 7 \cdot x$$

$$3x^2 + 4 = 7x$$

$$3x^2 - 7x + 4 = 0$$

مراجعة للصنف الرابع العاشر
ملع المعادلات بالتقويض

$$x - 4 = 3 \Rightarrow 4 = \frac{3}{x} - 0$$

$$x + y = 4 \dots (2)$$

$$x + \frac{3}{x} = 4 \cdot x$$

$$x^2 + \frac{3x}{x} = 4x$$

$$x^2 + 3 = 4x \quad (x=3)$$

$$x^2 - 4x + 3 = 0 \quad (x=1)$$

$$(x-3)(x-1) = 0$$

$$x - 3y = 6 \Rightarrow x = 6 + 3y - 0$$

$$2x + y = 5 - 0$$

$$2(6 + 3y) + y = 5$$

اشرائي

$$(39) \frac{y^3 - 64i^3}{y^2 + 4yi - 16} = (5 + xi)(i - x)$$

$$\frac{(y - 4i)(y^2 + 4yi - 16)}{(y^2 + 4yi - 16)} = 5i - 5x - x - x^2 i^0$$

$$y - 4i = 5i - 6x - x^2 i^0$$

$$y = -6x - ① \quad -4 = 5 - x^2$$

$$x^2 = 5 + 4 \Rightarrow x^2 = 9 \Rightarrow x = \pm 3$$

$$x = ③ \quad y = ①$$

$$x = ③ \quad y = ①$$

وزارة 2025 ت فراغ

حلل العدد المركب $(8+i)$ الى عوامله

$$8+i = 8 - i \cdot i^2$$

$$= 8 - i^3$$

$$= (2-i)(4+2i+i^2)$$

$$= (2-i)(4+2i-1)$$

$$= (2-i)(3+2i)$$

تحليل الفرق أو مجموع مكعبين

$$x^3 - y^3 = (x-y)(x^2 + xy + y^2)$$

$$x^3 + y^3 = (x+y)(x^2 - xy + y^2)$$

$$x^3 - y^3 i^3 = x^3 + y^3 i^3 = (x+yi)(x^2 - xyi + y^2 i^2)$$

$$x^3 + y^3 i^3 = x^3 - y^3 i^3 = (x-yi)(x^2 + xyi + y^2 i^2)$$

$$\sqrt[3]{1} = 1 \quad \sqrt[3]{64} = 4$$

$$\sqrt[3]{8} = 2 \quad \sqrt[3]{125} = 5$$

$$\sqrt[3]{27} = 3$$

س/جد قيمة $x, y \in \mathbb{R}$:

وزاري 2024 دور ①

$$\textcircled{26} (3x-i)(2y+i)+11=7i$$

$$\frac{6xy+3x-i2y+i}{2}+11=\frac{-11+7i}{2}$$

$$6xy+1=-11 \Rightarrow 6xy=\frac{-12}{6x}$$

$$y=\frac{-2}{x} \text{ --- ①}$$

$$3x-2y=7 \text{ --- ②}$$

$$3x-2\left(\frac{-2}{x}\right)=7$$

$$3x+\frac{4}{x}=7 \text{]} \cdot x$$

$$3x^2+4=7x$$

$$3x^2-7x+4=0$$

$$(3x-4)(x-1)=0$$

$$x=①, y=\frac{-2}{1}=②$$

$$x=\left(\frac{4}{3}\right), y=\frac{-2}{\frac{4}{3}}=-\frac{6}{4}=\left(\frac{-3}{2}\right)$$

وزاري 1999 دور ①

$$\textcircled{28} (3x+2yi)^2=\frac{200}{3+4i}$$

وزاري 1996 دور ①

$$\textcircled{27} (2x+i)(y-2i)=-2-9i$$

$$\text{الناتج: } x=\frac{1}{4}, y=-8$$

$$x=2, y=-1$$

$$9x^4 - 16 = 32x^2$$

$$9x^4 - 32x^2 - 16 = 0$$

$$(9x^2 + 4)(x^2 - 4) = 0$$

$$9x^2 + 4 = 0$$

$$x^2 = -\frac{4}{9} \quad \text{لكن}$$

$$x^2 = 4 \Rightarrow x = \pm 2$$

$$x = 2 \quad y = -1$$

$$x = -2 \quad y = 1$$

وزارة 1999 دور 1

$$(3x + 2yi)^2 = \frac{200}{4+3i} \cdot \frac{4-3i}{4-3i}$$

$$9x^2 + 12xyi - 4y^2 = \frac{200(4-3i)}{25}$$

$$\frac{9x^2}{9} + \frac{12xyi}{12i} - \frac{4y^2}{4} = \frac{32 - 24i}{9}$$

$$9x^2 - 4y^2 = 32 \quad \text{--- ①}$$

$$\frac{12xy}{12x} = \frac{-24}{12x} \Rightarrow y = \frac{-2}{x} \quad \text{--- ②}$$

$$9x^2 - 4\left(\frac{-2}{x}\right)^2 = 32$$

$$9x^2 - 4\left(\frac{4}{x^2}\right) = 32$$

$$9x^2 - \frac{16}{x^2} = 32 \quad \cdot x^2$$

$$3x^2 - 7x + 4 = 0$$

$$(3x - 4)(x - 1) = 0$$

$$x = 1, \quad y = \frac{-2}{1} = -2$$

$$x = \frac{4}{3}, \quad y = \frac{-2}{\frac{4}{3}} = -\frac{6}{4} = -\frac{3}{2}$$

س/جد قيمة $x, y \in \mathbb{R}$

وزارة 2024 دور 1

$$(3x - i)(2y + i) + 11 = 7i$$

$$\frac{6xy}{2} + \frac{3x}{2} - \frac{2y}{2} + \frac{1}{2} = \frac{-11 + 7i}{2}$$

$$6xy + 1 = -11 \Rightarrow 6xy = \frac{-12}{6x}$$

$$y = \frac{-2}{x} \quad \text{--- ①}$$

$$3x - 2y = 7 \quad \text{--- ②}$$

$$3x - 2\left(\frac{-2}{x}\right) = 7$$

$$3x + \frac{4}{x} = 7 \quad \cdot x$$

$$3x^2 + 4 = 7x$$

$$3x^2 - 13x + 4 = 0$$

$$(x - 4)(3x - 1) = 0$$

$$x = 4 \quad y = -\frac{4}{4} = -1$$

$$x = \frac{1}{3} \quad y = -\frac{4}{\frac{1}{3}} = -12$$

وزارة 2006 ت

$$(25) (x+i)(y-3i) = -1-13i$$

$$xy - 3xi + y + 3 = -1 - 13i$$

$$xy + 3 = -1 \Rightarrow xy = -1 - 3$$

$$xy = -\frac{4}{x} \Rightarrow y = -\frac{4}{x} \quad \text{--- (1)}$$

$$-3x + y = -13 \quad \text{--- (2)}$$

$$3x - y = 13 \quad \text{--- (2)}$$

$$3x - \left(-\frac{4}{x}\right) = 13$$

$$3x + \frac{4}{x} = 13 \quad \text{--- (3)}$$

$$3x^2 + 4 = 13x$$

$$x^2 - 4x + 3 = 0$$

$$(x-3)(x-1) = 0$$

$$\text{إما } x=3 \quad y = \frac{3}{3} \Rightarrow y=1$$

$$\text{أو } x=1 \quad y = \frac{3}{1} \Rightarrow y=3$$

س/ جد قيمة $x, y \in \mathbb{R}$:

$$(24) 8i = (x+2i)(y+2i) + 1$$

$$-1 + 8i = (x+2i)(y+2i)$$

$$(x+2i)(y+2i) = -1 + 8i$$

$$xy + 2xi + 2yi - 4 = -1 + 8i$$

$$xy - 4 = -1 \Rightarrow xy = -1 + 4$$

$$xy = \frac{3}{x} \Rightarrow y = \frac{3}{x} \quad \text{--- (1)}$$

$$2x + 2y = 8 \quad \text{--- (2)}$$

$$x + y = 4 \quad \text{--- (2)}$$

$$x + \frac{3}{x} = 4 \quad \text{--- (3)}$$

$$x^2 + 3 = 4x$$

$$y = 1 + 3x - \textcircled{1}$$

$$y = 1 + 3\left(\frac{3}{2}\right)$$

$$y = 1 + \frac{9}{2}$$

$$y = \frac{11}{2}$$

وزاری 2018 دور 1 خارج (50)

$$\textcircled{31} \frac{x-yi}{x^2-y^2(1+xi)(3+i)}$$

$$\frac{(x-yi) | \cancel{1}}{(x+yi)(x-yi) \cancel{(1+xi)(3+i)}}$$

$$x+yi = (1+xi)(3+i)$$

$$x+yi = 3+1+3xi-x$$

$$x = 3 - x$$

$$x+x=3$$

$$\frac{1}{2}x = \frac{3}{2} \Rightarrow x = \frac{3}{2}$$

نقص في 1

وزاری 1998 دور 2

$$\textcircled{32} (2+xi)(-x+i) = \frac{9y^2-49x^2}{3y+7i}$$

$$\underline{-2x+2i-x^2i-x} = \frac{(3y+7i)(3-7i)}{(3y+7i)}$$

$$\underline{-3x+2i-x^2i} = 3y-7i$$

$$\underline{-3x} = \underline{3y} \Rightarrow y = -x - \textcircled{1}$$

$$2-x^2 = -7 \Rightarrow 2+7 = x^2$$

$$x^2 = 9 \Rightarrow x = \pm 3$$

$$x = \textcircled{3} \quad y = \textcircled{-3}$$

$$x = \textcircled{-3} \quad y = \textcircled{+3}$$

سند حقیقة $x, y \in \mathbb{R}$ وزیر 2023 دور 3

$$\textcircled{33} \frac{y}{1+i} = \frac{x^2-4i^2}{x+2i}$$

$$\frac{y}{1+i} \cdot \frac{1-i}{1-i} = \frac{(x+2i)(x-2i)}{(x+2i)(x-2i)}$$

$$\frac{y-yi}{2} = \frac{(x-2i)}{1}$$

$$\underline{y-yi} = \underline{2x-4i}$$

$$y = 2x - \textcircled{1}$$

$$-y = -4 \cdot -1 \Rightarrow y = \textcircled{4}$$

$$\frac{4}{2} = \frac{1}{2}x \Rightarrow x = \textcircled{8}$$