

Exercice

Écrire la forme algébrique des conjugués des nombres suivants :

1. $z_1 = 4 - 5i$

2. $z_2 = -5 + 4i$

3. $z_3 = 2i + (5 - 3i)$

4. $z_4 = (2 - i)(2 + 3i)$

5. $z_5 = \frac{1}{2 - 3i}$

6. $z_6 = \frac{2i}{5 - i}$

Correction :

1. $\boxed{\overline{z_1} = 4 + 5i}$

2. $\boxed{\overline{z_2} = -5 - 4i}$

3. $z_3 = 2i + 5 - 3i = 5 - i$

$$\boxed{\overline{z_3} = 5 + i}$$

ou $\boxed{\overline{z_3} = \overline{2i + 5 - 3i} = -2i + 5 + 3i = 5 + i}$

4. $z_4 = (2 - i)(2 + 3i)$

$$\overline{z_4} = \overline{(2 - i)} \times \overline{(2 + 3i)}$$

$$\overline{z_4} = (2 + i)(2 - 3i)$$

$$\overline{z_4} = 4 + 2i - 6i + 3$$

$$\boxed{\overline{z_4} = 7 - 4i}$$

$$5. \overline{z_5} = \frac{1}{2-3i} = \frac{1}{2+3i}$$

$$\overline{z_5} = \frac{2-3i}{(2+3i)(2-3i)} = \frac{2-3i}{4+9} = \frac{2}{13} - \frac{3}{13}i$$

$$6. \overline{z_6} = \frac{\overline{2i}}{5-i} = \frac{-2i}{5+i}$$

$$\overline{z_6} = \frac{-2i(5-i)}{(5+i)(5-i)} = \frac{-2-10i}{25+1} = \frac{-1}{13} - \frac{5}{13}i$$