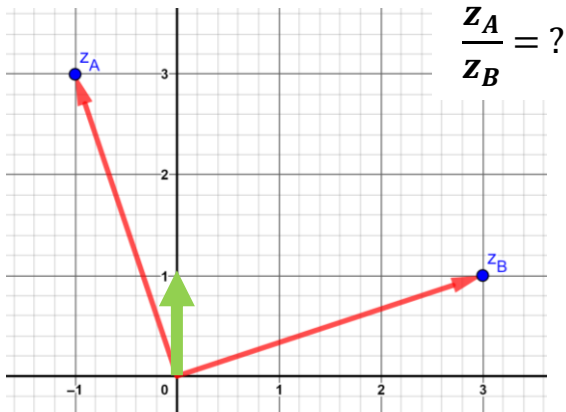
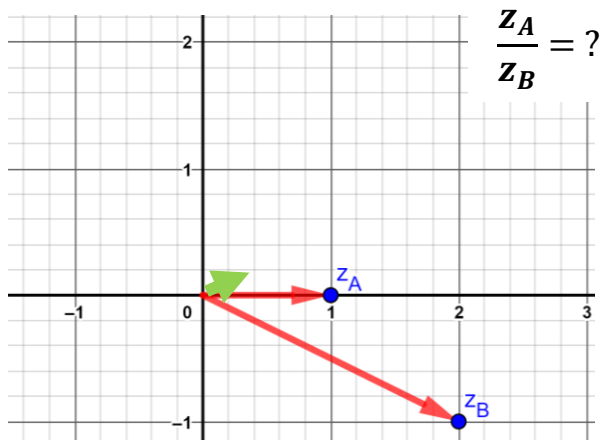




$$z_A = -1 + 3i$$

$$z_B = 3 + i$$

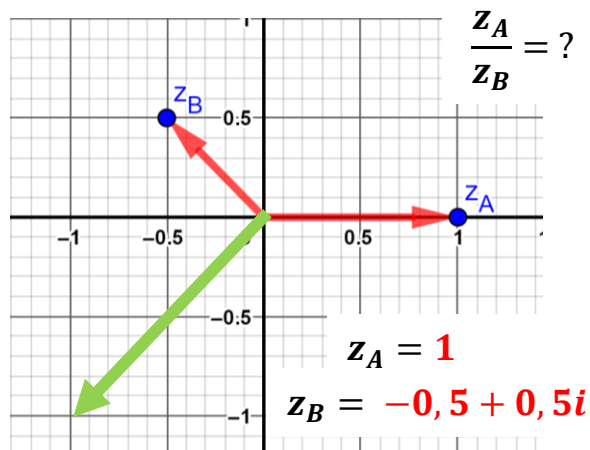
$$\begin{aligned} \frac{-1 + 3i}{3 + i} &= \frac{(-1 + 3i)(3 - i)}{(3 + i)(3 - i)} \\ &= \frac{-3 + i + 9i - 3i^2}{3^2 + 1^2} \\ &= \frac{-3 + 10i + 3}{10} \\ &= \frac{10i}{10} = i \end{aligned}$$



$$z_A = 1$$

$$z_B = 2 - i$$

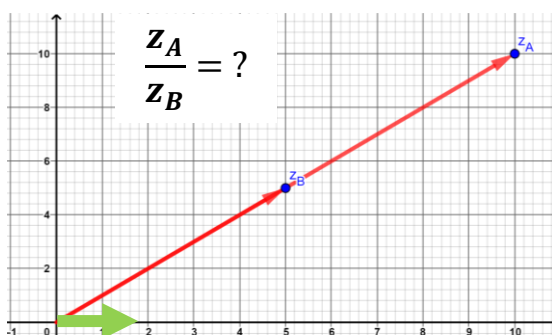
$$\begin{aligned} \frac{1}{2 - i} &= \frac{1 \times (2 + i)}{(2 - i)(2 + i)} \\ &= \frac{2 + i}{2^2 + (-1)^2} \\ &= \frac{2 + i}{5} \\ &= \frac{2}{5} + \frac{1}{5}i = 0,4 + 0,2i \end{aligned}$$



$$z_A = 1$$

$$z_B = -0,5 + 0,5i$$

$$\begin{aligned} \frac{1}{-0,5 + 0,5i} &= \frac{1 \times (-0,5 - 0,5i)}{(-0,5 + 0,5i)(-0,5 - 0,5i)} \\ &= \frac{-0,5 - 0,5i}{(-0,5)^2 + 0,5^2} \\ &= \frac{-0,5 - 0,5i}{0,5} \\ &= \frac{-0,5}{0,5} - \frac{0,5}{0,5}i = -1 - i \end{aligned}$$



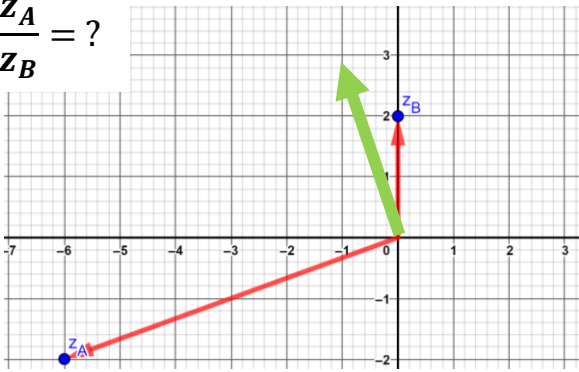
$$z_A = 10 + 10i$$

$$z_B = 5 + 5i$$

$$\frac{10 + 10i}{5 + 5i} = \frac{2(5 + 5i)}{(5 + 5i)} = 2$$

On peut aussi faire une division classique pour finalement arriver sur le même résultat.

$$\frac{z_A}{z_B} = ?$$



$$z_A = -6 - 2i$$

$$z_B = 2i$$

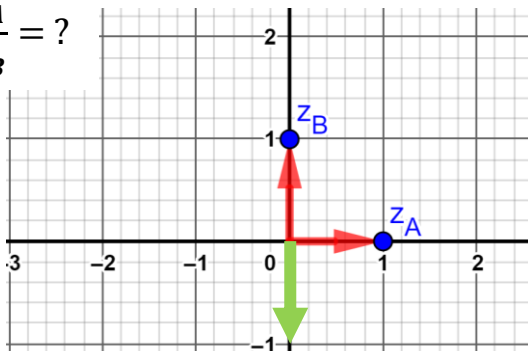
$$\frac{-6 - 2i}{2i} = \frac{(-6 - 2i) \times (-2i)}{2i \times (-2i)}$$

$$= \frac{12i + 4i^2}{4}$$

$$= \frac{-4 + 12i}{4}$$

$$= -\frac{4}{4} + \frac{12}{4}i = -1 + 3i$$

$$\frac{z_A}{z_B} = ?$$



$$z_A = 1$$

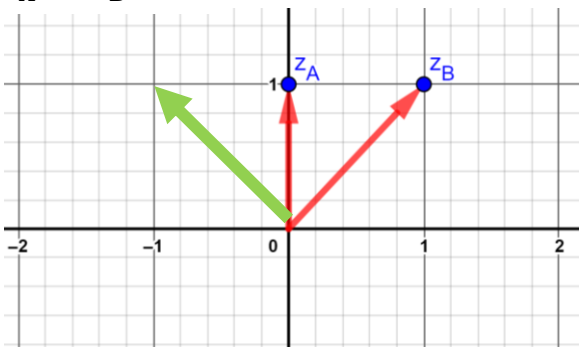
$$z_B = i$$

$$\frac{1}{i} = \frac{1 \times (-i)}{i \times (-i)}$$

$$= \frac{-i}{1}$$

$$= -i$$

$$z_A \times z_B = ?$$

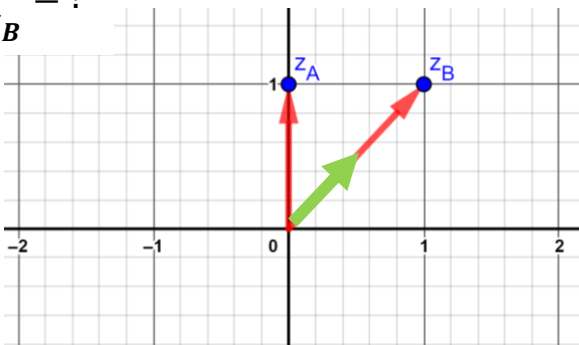


$$z_A = i$$

$$z_B = 1 + i$$

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

$$\frac{z_A}{z_B} = ?$$



$$z_A = i$$

$$z_B = 1 + i$$

$$\frac{i}{(1 + i)} = \frac{i \times (1 - i)}{(1 + i)(1 - i)}$$

$$= \frac{i - i^2}{1^2 + 1^2}$$

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

$$= \frac{1}{2} + \frac{1}{2}i = 0,5 + 0,5i$$