

Math 092

Quiz 7.8

Let $z = 4+i$ and $w = 3+2i$ perform the following operations.

A) $z+w$

$$= (4+i) + (3+2i)$$

$$= (4+3) + i(1+2)$$

$$= 7 + 3i$$

B) $z-w$

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

$$= (4-3) + i(1-2)$$

$$= 1 - i$$

C) $z \cdot w$

$$= (4+i)(3+2i)$$

$$= 12 + 8i + 3i + 2i^2$$

$$= 12 + 11i - 2$$

$$= 10 + 11i$$

D) w/z

$$\frac{(4+i)}{(4+i)} = \frac{3+2i}{4+i} \frac{(4-i)}{(4-i)} = \frac{12-3i+8i-2i^2}{16-i^2}$$

$$= \frac{12+5i+2}{17}$$

$$= \frac{14+5i}{17}$$

$$= \frac{14}{17} + \frac{5i}{17}$$