

Question 1

Let

$$z_1 = x + iy$$

and

$$z_2 = x - iy.$$

Which of the following is true?

1. $z_1 z_2 = x^2 + y^2$
2. $z_1 z_2 = x^2 - y^2$
3. $z_1 z_2 = 2xy$
4. $z_1 z_2 = 2ixy$
5. $z_1 z_2 = x^2 + 2ixy - y^2$

Question 2

Let

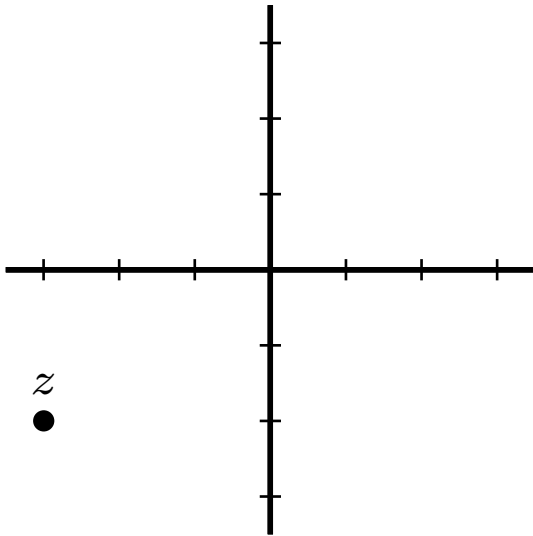
$$z = i(3 + 4i)$$

Which of the following best represents z^* ?

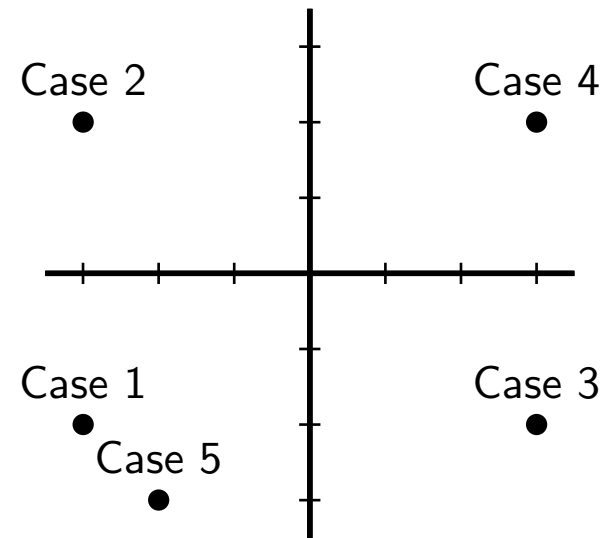
1. $i(3 - 4i)$
2. $i(3 + 4i)$
3. $-i(3 + 4i)$
4. $-i(3 - 4i)$

Question 3

A complex number z is represented in the complex plane as follows:



Which of the following best represents z^* ?



Question 4

Let

$$z_1 = 3 + i4$$

and

$$z_2 = -4 + i3.$$

Which of the following is true?

1. $|z_1 z_2| = 0$
2. $|z_1 z_2| = -5$
3. $|z_1 z_2| = +5$
4. $|z_1 z_2| = 25$

Question 5

Let

$$z = e^{i0}$$

Which of the following best represents z ?

1. i
2. 1
3. -1
4. $-i$
5. $1 + i$

Question 6

Let

$$z = e^{i\frac{\pi}{2}}$$

Which of the following best represents z ?

1. i
2. 1
3. -1
4. $-i$
5. $1 + i$

Question 7

Let

$$z = e^{i\pi}$$

Which of the following best represents z ?

1. i
2. 1
3. -1
4. $-i$
5. $1 + i$

Question 8

Let

$$z = e^{i2\pi}$$

Which of the following best represents z ?

1. i
2. 1
3. -1
4. $-i$
5. $1 + i$

Question 9

Let

$$z = e^{i\frac{\pi}{4}}$$

Which of the following best represents z ?

1. $-\frac{1}{\sqrt{2}} - i\frac{1}{\sqrt{2}}$
2. $\frac{1}{\sqrt{2}} - i\frac{1}{\sqrt{2}}$
3. $-\frac{1}{\sqrt{2}} + i\frac{1}{\sqrt{2}}$
4. $\frac{1}{\sqrt{2}} + i\frac{1}{\sqrt{2}}$