

PRINTABLE VERSION

Quiz 5

Question 1

Simplify the following expression and write in the form $a + bi$:

$$\sqrt{-4} \cdot \sqrt{-36} + \sqrt{-49} + 1$$

- a) $1 - 15i$
- b) $12 + 8i$
- c) $-12 + 7i$
- d) $-11 + 7i$
- e) $1 + 15i$
- f) None of the above.

Question 2

Simplify the following expression and write in the form $a + bi$:

$$\frac{1 + \sqrt{-64}}{\sqrt{-81} \cdot \sqrt{-16}}$$

- a) $\frac{1}{36} - \frac{2}{9}i$
- b) $\frac{1}{9} + 2i$
- c) $-\frac{1}{9} - 2i$
- d) $\frac{1}{36} + \frac{2}{9}i$
- e) $-\frac{1}{36} - \frac{2}{9}i$

f) None of the above.

Question 3

Simplify the following expression: $-6i(-3i + 6)$

- a) $36i - 18$
- b) $18i + 36$
- c) $-36i + 18$
- d) $-36i - 18$
- e) $36i + 18$
- f) None of the above.

Question 4

Write the following expression in the form $a + bi$.

$$\frac{1}{3 + i}$$

- a) $\frac{3}{10} - \frac{1}{10}i$
- b) $-\frac{3}{10} + \frac{1}{10}i$
- c) $\frac{3}{10} + \frac{1}{10}i$
- d) $\frac{3}{8} + \frac{1}{8}i$
- e) $-\frac{3}{10} - \frac{1}{10}i$
- f) None of the above.

Question 5

Write the following expression in the form $a + bi$.

$$\frac{5i + 4}{3 + i}$$

a) $-\frac{17}{10} + \frac{11}{10}i$

b) $\frac{17}{10} - \frac{11}{10}i$

c) $-\frac{17}{10} - \frac{11}{10}i$

d) $-\frac{7}{8} - \frac{11}{8}i$

e) $\frac{17}{10} + \frac{11}{10}i$

f) None of the above.**Question 6**Simplify i^{13} .

a) 1

b) -1

c) $i + 1$

d) $-i$

e) i

f) None of the above.**Question 7**Write the following expression in the form $a + bi$.

$$-\frac{2i}{5i - 3}$$

a) $-\frac{5}{17} + \frac{3}{17}i$

b) $\frac{5}{17} - \frac{3}{17}i$

c) $6i - 10$

d) $\frac{5}{8} - \frac{3}{8}i$

e) None of the above.**Question 8**Find all complex solutions to the equation: $x^2 + 20 = 0$

a) $x = 2\sqrt{5}i, x = -2\sqrt{5}i$

b) $x = 2i, x = -2i$

c) $x = 5\sqrt{2}i, x = -5\sqrt{2}i$

d) $x = 2\sqrt{5}, x = -2\sqrt{5}$

e) None of the above.**Question 9**Find all complex solutions to the equation: $25x^2 + 9 = 0$

a) $x = 3i, x = -3i$

b) $x = \frac{3}{5}i, x = -\frac{3}{5}i$

c) $x = \frac{3}{5}, x = -\frac{3}{5}$

d) $x = \frac{5}{3}i, x = -\frac{5}{3}i$

e) $x = \frac{5}{3}, x = -\frac{5}{3}$

f) None of the above.**Question 10**Use the quadratic formula to find all complex solutions to the equation: $3x^2 + 2x + 4 = 0$

- a) $x = -1 + \sqrt{11}i, x = -1 - \sqrt{11}i$
- b) $x = -\frac{1}{3} + \frac{\sqrt{11}}{3}i, x = -\frac{1}{3} - \frac{\sqrt{11}}{3}i$
- c) $x = -2 + \frac{\sqrt{11}}{3}i, x = -2 - \frac{\sqrt{11}}{3}i$
- d) $x = -\frac{1}{3} + \frac{22}{3}i, x = -\frac{1}{3} - \frac{22}{3}i$
- e) None of the above.