MATHS

BOOKS - KAPLAN INC MATHS (ENGLISH)

IMAGINARY NUMBERS

Multiple Choice Question

1. Which of the following are zeros of the quadratic equation $x^2 + 9 = 0$? (Note: i=$\sqrt{-1}$

)

A. ± 3

B. $\pm 3i$

C. $\pm 8i$

D. $\pm 81i$

Answer: B

2. Which of the following is equivalent to $(4 + 7i) - (3 - 2i)$?

    A. $1 + 5i$

    B. $1 + 9i$

    C. $7 + 5i$

    D. $7 + 9i$

Answer: B

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3. Which of the following shows $(2 + 6i)(3i - 4)$ written as a complex number in the form $a + bi$? (Note: $i^2 = -1$)

A. $-26 - 18i$

B. $-18 + 10i$

C. $10 - 18i$

D. $30 + 10i$

Answer: A

4. What is the value of $-i^{48}$?

A. $-i$

B. i

C. -1

D. 1

Answer: C

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5. Which of the following is a solutions to the equation $4x^5 + 4x^3 = 360x$? (Note: $i = \sqrt{-1}$)

A. -10

B. $i\sqrt{10}$

C. $10i$

D. $\sqrt{10}$

Answer: B

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6. What is $\sqrt{-18} \times \sqrt{-50}$ written in simplest form? (Note: $i = \sqrt{-1}$)

A. -30

B. $30i$

C. 30

D. $30i$

Answer: A

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7. If u and v are complex numbers such that $u = 3 - 5i$ and $v = -6 + i$, which of the following is equivalent to $(u + v)^2$? (Note: $i^2 = -1$)

    A. $-7 + 24i$

    B. $9 + 8i$

    C. $9 + 8i$

    D. $25 - 24i$

Answer: A

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8. Which of the following is equivalent to $\dfrac{4 + 6i}{10 - 5i}$? (Note: $i^2 = -1$)

A. $\dfrac{2}{25} + \dfrac{16}{25}i$

B. $\dfrac{2}{25} - \dfrac{16}{25}i$

C. $\dfrac{2}{5} + \dfrac{6}{5}i$

D. $\dfrac{2}{5} - \dfrac{6}{5}i$

Answer: A

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9. $\dfrac{2-i}{5-2i}$

If the expression above is rewritten in the

form a+bi, where a and b are real numbers,

what is the value of $-b$ written as a fraction?

(Note: $i^2 = -1$)

10. Which of the following is equivalent to

$\dfrac{10-\sqrt{-12}}{1-\sqrt{-27}}$? (Note: $i = \sqrt{-1}$)

A. $\dfrac{-2}{7}$

B. $\dfrac{28}{3}$

C. $\dfrac{-2}{7} + i\sqrt{3}$

D. $1 + i\sqrt{3}$

Answer: D

11. If w and z represents two complex numbers such that $w = 3 - 2i$ and $z = -2 + 4i$, which of he following gives $\dfrac{w}{2}$ written in the form a+bi? (Note: $i^2 = -1$)

A. $-\dfrac{3}{2} - \dfrac{1}{2}i$

B. $-\dfrac{7}{10} - \dfrac{2}{5}i$

C. $\dfrac{13}{20} - \dfrac{1}{2}i$

D. $\dfrac{7}{6} + \dfrac{2}{3}i$

Answer: B

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12. Two complex numbers A and B, are where k is a constant. If $AB - 15 = 60$, what is the value of k? (Note: $i^2 = -1$)

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