

1. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(-8 - 9i)(-4 - 7i)$$

- A. $a \in [-31, -25]$ and $b \in [89, 98]$
 - B. $a \in [92, 97]$ and $b \in [-26, -19]$
 - C. $a \in [31, 33]$ and $b \in [62, 66]$
 - D. $a \in [-31, -25]$ and $b \in [-99, -91]$
 - E. $a \in [92, 97]$ and $b \in [13, 23]$
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2. Simplify the expression below and choose the interval the simplification is contained within.

$$10 - 18^2 + 14 \div 19 * 11 \div 9$$

- A. $[-314.74, -313.67]$
 - B. $[333.63, 334.21]$
 - C. $[-313.97, -311.99]$
 - D. $[334.86, 335.48]$
 - E. None of the above
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3. Simplify the expression below and choose the interval the simplification is contained within.

$$11 - 12^2 + 20 \div 17 * 6 \div 10$$

- A. $[155.64, 156.28]$
- B. $[154.41, 155.04]$
- C. $[-132.54, -131.39]$
- D. $[-134.12, -132.81]$
- E. None of the above

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4. Choose the **smallest** set of Real numbers that the number below belongs to.

$$\sqrt{\frac{27225}{121}}$$

- A. Irrational
 - B. Integer
 - C. Rational
 - D. Whole
 - E. Not a Real number
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5. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-12}{-9} + \sqrt{-36}i$$

- A. Not a Complex Number
 - B. Pure Imaginary
 - C. Rational
 - D. Nonreal Complex
 - E. Irrational
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6. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-45 + 88i}{3 + 4i}$$

- A. $a \in [8, 9]$ and $b \in [17.5, 19]$
- B. $a \in [-16, -14.5]$ and $b \in [21, 22.5]$
- C. $a \in [-21, -18.5]$ and $b \in [2.5, 4]$

D. $a \in [216, 217.5]$ and $b \in [17.5, 19]$

E. $a \in [8, 9]$ and $b \in [443, 444.5]$

7. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$\frac{-54 + 55i}{8 + 7i}$$

A. $a \in [-47.65, -46.45]$ and $b \in [6.85, 7.6]$

B. $a \in [-7.3, -7.05]$ and $b \in [0.5, 1.25]$

C. $a \in [-7.05, -6.7]$ and $b \in [7.25, 8.3]$

D. $a \in [-0.8, -0.15]$ and $b \in [817.55, 818.3]$

E. $a \in [-0.8, -0.15]$ and $b \in [6.85, 7.6]$

8. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{-2002}{14}}$$

A. Rational

B. Whole

C. Not a Real number

D. Integer

E. Irrational

9. Simplify the expression below into the form $a + bi$. Then, choose the intervals that a and b belong to.

$$(6 + 7i)(9 + 2i)$$

A. $a \in [67, 77]$ and $b \in [-54, -46]$

- B. $a \in [48, 56]$ and $b \in [12, 16]$
 - C. $a \in [67, 77]$ and $b \in [51, 53]$
 - D. $a \in [40, 47]$ and $b \in [-78, -74]$
 - E. $a \in [40, 47]$ and $b \in [74, 79]$
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10. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{1890}{15}} + \sqrt{143}i$$

- A. Not a Complex Number
 - B. Nonreal Complex
 - C. Pure Imaginary
 - D. Rational
 - E. Irrational
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