

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

$$\frac{18 - 44i}{-1 - 8i}$$

- A.  $a \in [-18.5, -17.5]$  and  $b \in [5, 6.5]$
  - B.  $a \in [4.5, 6.5]$  and  $b \in [1.5, 3.5]$
  - C.  $a \in [-6.5, -5]$  and  $b \in [-2, -0.5]$
  - D.  $a \in [333.5, 334.5]$  and  $b \in [1.5, 3.5]$
  - E.  $a \in [4.5, 6.5]$  and  $b \in [187.5, 189.5]$
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2. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(3 + 6i)(8 - 7i)$$

- A.  $a \in [63, 70]$  and  $b \in [19, 29]$
  - B.  $a \in [63, 70]$  and  $b \in [-27, -23]$
  - C.  $a \in [-18, -15]$  and  $b \in [-69, -68]$
  - D.  $a \in [-18, -15]$  and  $b \in [68, 70]$
  - E.  $a \in [22, 28]$  and  $b \in [-45, -41]$
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3. Simplify the expression below and choose the interval the simplification is contained within.

$$4 - 7^2 + 8 \div 20 * 11 \div 13$$

- A.  $[-44.79, -44.62]$
- B.  $[52.89, 53.08]$
- C.  $[53.1, 53.74]$
- D.  $[-45.14, -44.87]$

E. None of the above

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

$$\sqrt{\frac{324}{0}} + \sqrt{165}i$$

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

$$-\sqrt{\frac{6}{0}}$$

- A. Irrational
  - B. Rational
  - C. Whole
  - D. Not a Real number
  - E. Integer
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6. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$\frac{63 + 11i}{-4 - 3i}$$

- A.  $a \in [-17, -14]$  and  $b \in [-4.5, -3]$
- B.  $a \in [-285.5, -284]$  and  $b \in [5.5, 6.5]$

- C.  $a \in [-9.5, -8]$  and  $b \in [-10.5, -8.5]$   
D.  $a \in [-12.5, -11]$  and  $b \in [144.5, 146.5]$   
E.  $a \in [-12.5, -11]$  and  $b \in [5.5, 6.5]$
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7. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(8 + 7i)(-3 - 9i)$$

- A.  $a \in [-31, -21]$  and  $b \in [-66, -56]$   
B.  $a \in [37, 42]$  and  $b \in [-96, -91]$   
C.  $a \in [-93, -85]$  and  $b \in [51, 52]$   
D.  $a \in [37, 42]$  and  $b \in [88, 97]$   
E.  $a \in [-93, -85]$  and  $b \in [-56, -50]$
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8. Simplify the expression below and choose the interval the simplification is contained within.

$$5 - 9 \div 10 * 3 - (7 * 19)$$

- A.  $[-132, -129.9]$   
B.  $[-129.1, -127.2]$   
C.  $[-89.6, -88.4]$   
D.  $[136.5, 137.8]$   
E. None of the above
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9. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\frac{-5}{10} + \sqrt{90}i$$

- A. Pure Imaginary

- B. Not a Complex Number
  - C. Irrational
  - D. Nonreal Complex
  - E. Rational
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10. Choose the **smallest** set of Real numbers that the number below belongs to.

$$-\sqrt{\frac{900}{10}}$$

- A. Integer
  - B. Whole
  - C. Not a Real number
  - D. Irrational
  - E. Rational
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