

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

$$\frac{18 - 44i}{1 + 6i}$$

- A.  $a \in [-246.5, -245]$  and  $b \in [-5.5, -3.5]$
  - B.  $a \in [7, 8]$  and  $b \in [1, 2.5]$
  - C.  $a \in [-7.5, -6]$  and  $b \in [-5.5, -3.5]$
  - D.  $a \in [17.5, 19]$  and  $b \in [-8, -6.5]$
  - E.  $a \in [-7.5, -6]$  and  $b \in [-153, -151.5]$
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2. Simplify the expression below and choose the interval the simplification is contained within.

$$4 - 1^2 + 8 \div 12 * 13 \div 11$$

- A.  $[3.15, 4.29]$
  - B.  $[4.48, 5.05]$
  - C.  $[5.36, 7.19]$
  - D.  $[2.71, 3.17]$
  - E. None of the above
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3. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(-10 + 6i)(3 + 7i)$$

- A.  $a \in [-33, -29]$  and  $b \in [40, 47]$
- B.  $a \in [12, 16]$  and  $b \in [87, 94]$
- C.  $a \in [12, 16]$  and  $b \in [-89, -86]$
- D.  $a \in [-74, -67]$  and  $b \in [52, 53]$

E.  $a \in [-74, -67]$  and  $b \in [-52, -51]$

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

$$\sqrt{\frac{1001}{0}} + \sqrt{105}i$$

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

$$\sqrt{\frac{69696}{484}}$$

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

$$\frac{45 + 77i}{6 + i}$$

- A.  $a \in [8.5, 10]$  and  $b \in [11, 12]$
- B.  $a \in [4, 6.5]$  and  $b \in [13, 14.5]$

- C.  $a \in [8.5, 10]$  and  $b \in [415.5, 417.5]$
  - D.  $a \in [346, 348.5]$  and  $b \in [11, 12]$
  - E.  $a \in [6.5, 8]$  and  $b \in [75.5, 77.5]$
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7. Choose the **smallest** set of Complex numbers that the number below belongs to.

$$\sqrt{\frac{0}{14}} + \sqrt{9}i$$

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

$$\sqrt{\frac{13}{0}}$$

- A. Rational
  - B. Integer
  - C. Whole
  - D. Not a Real number
  - E. Irrational
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9. Simplify the expression below and choose the interval the simplification is contained within.

$$18 - 16 \div 20 * 2 - (14 * 9)$$

- A.  $[-110.2, -108.8]$

- B.  $[-109.5, -107.3]$
  - C.  $[142.5, 144.2]$
  - D.  $[20.2, 24]$
  - E. None of the above
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10. Simplify the expression below into the form  $a + bi$ . Then, choose the intervals that  $a$  and  $b$  belong to.

$$(6 + 2i)(-4 - 9i)$$

- A.  $a \in [-8, 3]$  and  $b \in [57, 64]$
  - B.  $a \in [-8, 3]$  and  $b \in [-62, -57]$
  - C.  $a \in [-46, -33]$  and  $b \in [-50, -45]$
  - D.  $a \in [-29, -19]$  and  $b \in [-19, -15]$
  - E.  $a \in [-46, -33]$  and  $b \in [45, 47]$
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