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

$$\sqrt{\frac{4096}{64}}$$

A. Rational

B. Not a Real number

C. Whole

D. Integer

E. Irrational

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2. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 10 \div 17 * 15 - (6 * 18)$$

A. $[-53.82, -46.82]$

B. $[115.96, 121.96]$

C. $[-110.82, -103.82]$

D. $[-104.04, -92.04]$

E. None of the above

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3. Simplify the expression below and choose the interval the simplification is contained within.

$$12 - 7^2 + 19 \div 14 * 17 \div 10$$

A. $[63.08, 64.09]$

B. $[-38.16, -36.7]$

C. $[60.5, 61.5]$

D. $[-34.8, -34.29]$

E. None of the above

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

$$\frac{\sqrt{165}}{16} + 3i^2$$

A. Rational

B. Pure Imaginary

C. Not a Complex Number

D. Nonreal Complex

E. Irrational

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

$$(8 + 7i)(9 + 10i)$$

A. $a \in [140, 147]$ and $b \in [-17, -15]$

B. $a \in [1, 7]$ and $b \in [-152, -141]$

C. $a \in [140, 147]$ and $b \in [14, 18]$

D. $a \in [1, 7]$ and $b \in [142, 146]$

E. $a \in [70, 77]$ and $b \in [64, 79]$

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

$$\frac{-45 + 77i}{2 - 3i}$$

A. $a \in [-23, -22]$ and $b \in [-26.5, -25]$

B. $a \in [-25, -24.5]$ and $b \in [18, 20]$

C. $a \in [-25, -24.5]$ and $b \in [0.5, 2]$

D. $a \in [-321.5, -319.5]$ and $b \in [0.5, 2]$

E. $a \in [10, 11.5]$ and $b \in [21.5, 23]$

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

$$\sqrt{\frac{361}{256}} + \sqrt{198}i$$

A. Pure Imaginary

B. Not a Complex Number

C. Nonreal Complex

D. Rational

E. Irrational

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

$$(4 - 8i)(6 + 7i)$$

A. $a \in [-36, -28]$ and $b \in [70, 79]$

B. $a \in [23, 28]$ and $b \in [-59, -52]$

C. $a \in [-36, -28]$ and $b \in [-83, -70]$

D. $a \in [75, 87]$ and $b \in [17, 21]$

E. $a \in [75, 87]$ and $b \in [-24, -18]$

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

$$\frac{-45 - 44i}{2 + 7i}$$

A. $a \in [-9, -6.5]$ and $b \in [226, 228.5]$

B. $a \in [-399, -397]$ and $b \in [4, 5]$

C. $a \in [3, 5]$ and $b \in [-9, -7]$

D. $a \in [-23, -21.5]$ and $b \in [-7, -6]$

E. $a \in [-9, -6.5]$ and $b \in [4, 5]$

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

$$-\sqrt{\frac{1680}{15}}$$

A. Rational

B. Whole

C. Irrational

D. Integer

E. Not a Real number
