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

$$\sqrt{\frac{0}{49}} + \sqrt{4}i$$

A. Nonreal Complex

B. Irrational

C. Not a Complex Number

D. Rational

E. Pure Imaginary

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

$$2 - 10^2 + 11 \div 8 * 6 \div 5$$

A. $[-100.3, -96.6]$

B. $[103, 109.3]$

C. $[-97.5, -94.3]$

D. $[100.5, 102.9]$

E. None of the above

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

$$\sqrt{\frac{23104}{361}}$$

A. Rational

B. Integer

C. Not a Real number

D. Whole

E. Irrational

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

$$(5 + 9i)(10 + 7i)$$

A. $a \in [-13, -9]$ and $b \in [-133, -123]$

B. $a \in [112, 117]$ and $b \in [-55, -52]$

C. $a \in [112, 117]$ and $b \in [55, 61]$

D. $a \in [-13, -9]$ and $b \in [123, 128]$

E. $a \in [49, 52]$ and $b \in [63, 66]$

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

$$\sqrt{\frac{1584}{0}} + \sqrt{112}i$$

A. Irrational

B. Not a Complex Number

C. Rational

D. Pure Imaginary

E. Nonreal Complex

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

$$(4 - 10i)(8 - 2i)$$

A. $a \in [32, 34]$ and $b \in [18, 26]$

B. $a \in [51, 58]$ and $b \in [68, 79]$

C. $a \in [11, 15]$ and $b \in [-93, -85]$

D. $a \in [51, 58]$ and $b \in [-74, -69]$

E. $a \in [11, 15]$ and $b \in [84, 90]$

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

$$\sqrt{\frac{2730}{14}}$$

A. Integer

B. Rational

C. Not a Real number

D. Irrational

E. Whole

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

$$\frac{18 + 44i}{-1 + 7i}$$

A. $a \in [-18.5, -17.5]$ and $b \in [5.5, 6.5]$

B. $a \in [289, 290.5]$ and $b \in [-4, -3]$

C. $a \in [-7, -6.5]$ and $b \in [1, 3]$

D. $a \in [4, 6.5]$ and $b \in [-4, -3]$

E. $a \in [4, 6.5]$ and $b \in [-171, -169]$

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

$$15 - 16^2 + 6 \div 8 * 20 \div 18$$

A. $[-241.14, -240.53]$

B. $[270.95, 271.64]$

C. $[-240.18, -239.57]$

D. $[271.36, 272.12]$

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.

$$\frac{18 - 33i}{1 - 7i}$$

A. $a \in [247.5, 249.5]$ and $b \in [1, 3]$

B. $a \in [-6.5, -3.5]$ and $b \in [-3.5, -2.5]$

C. $a \in [17, 19]$ and $b \in [4, 5]$

D. $a \in [3.5, 5.5]$ and $b \in [1, 3]$

E. $a \in [3.5, 5.5]$ and $b \in [92, 93.5]$
