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

$$\frac{-11}{3} + 81i^2$$

A. Irrational

B. Rational

C. Nonreal Complex

D. Not a Complex Number

E. Pure Imaginary

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

$$5 - 14^2 + 19 \div 16 * 4 \div 9$$

A. $[-190.87, -189.7]$

B. $[-191.22, -190.73]$

C. $[201.3, 201.59]$

D. $[200.56, 201.24]$

E. None of the above

---

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

$$\sqrt{\frac{100}{361}} + 4i^2$$

A. Irrational

B. Nonreal Complex

C. Pure Imaginary

D. Not a Complex Number

E. Rational

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

$$\frac{-9 - 77i}{3 + 4i}$$

A. $a \in [-13.5, -13]$ and $b \in [-196, -194.5]$

B. $a \in [-3.5, -2.5]$ and $b \in [-20, -18]$

C. $a \in [-13.5, -13]$ and $b \in [-8, -7]$

D. $a \in [-336, -334.5]$ and $b \in [-8, -7]$

E. $a \in [11, 12.5]$ and $b \in [-11, -9.5]$

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

$$\frac{9 + 77i}{-4 - 6i}$$

A. $a \in [-499.5, -497.5]$ and $b \in [-5, -4]$

B. $a \in [-10, -9.5]$ and $b \in [-255, -253.5]$

C. $a \in [-2.5, -1]$ and $b \in [-14, -11.5]$

D. $a \in [-10, -9.5]$ and $b \in [-5, -4]$

E. $a \in [7.5, 9.5]$ and $b \in [-7.5, -6]$

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

$$1 - 16^2 + 4 \div 3 * 15 \div 5$$

A. $[-256.7, -254.9]$

B. $[257.3, 261.1]$

C. $[254.2, 257.8]$

D. $[-253.8, -249.7]$

E. None of the above

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

$$(-6 + 9i)(-2 + 5i)$$

A. $a \in [50, 62]$ and $b \in [7, 18]$

B. $a \in [-38, -30]$ and $b \in [-48, -45]$

C. $a \in [7, 15]$ and $b \in [44, 47]$

D. $a \in [-38, -30]$ and $b \in [46, 54]$

E. $a \in [50, 62]$ and $b \in [-14, -11]$

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

$$\sqrt{\frac{12996}{361}}$$

A. Integer

B. Irrational

C. Whole

D. Rational

E. Not a Real number

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

$$(7 + 3i)(-4 + 6i)$$

A. $a \in [-50, -41]$ and $b \in [29, 31]$

B. $a \in [-50, -41]$ and $b \in [-33, -29]$

C. $a \in [-10, -6]$ and $b \in [49, 57]$

D. $a \in [-34, -24]$ and $b \in [15, 20]$

E. $a \in [-10, -6]$ and $b \in [-56, -50]$

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

$$\sqrt{\frac{324}{361}}$$

A. Rational

B. Not a Real number

C. Integer

D. Irrational

E. Whole
