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

$$(-9 - 3i)(-8 + 4i)$$

A. $a \in [60, 63]$ and $b \in [-61, -51]$

B. $a \in [84, 89]$ and $b \in [-17, -11]$

C. $a \in [84, 89]$ and $b \in [8, 13]$

D. $a \in [70, 73]$ and $b \in [-17, -11]$

E. $a \in [60, 63]$ and $b \in [57, 62]$

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

$$5 - 4 \div 10 * 7 - (8 * 15)$$

A. $[-90, -84]$

B. $[-122.8, -116.8]$

C. $[-116.06, -107.06]$

D. $[119.94, 128.94]$

E. None of the above

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

$$\sqrt{\frac{2304}{36}}$$

A. Whole

B. Irrational

C. Rational

D. Integer

E. Not a Real number

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

$$\sqrt{\frac{81}{625}} + \sqrt{85}i$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Pure Imaginary

E. Irrational

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

$$\sqrt{\frac{65025}{289}}$$

A. Irrational

B. Integer

C. Whole

D. Rational

E. Not a Real number

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

$$\frac{18 + 66i}{-8 + 5i}$$

A. $a \in [-6.5, -4.5]$ and $b \in [-5.5, -3.5]$

B. $a \in [184.5, 187.5]$ and $b \in [-8.5, -6]$

C. $a \in [-3.5, -1]$ and $b \in [12.5, 14.5]$

D. $a \in [1.5, 2.5]$ and $b \in [-619, -617.5]$

E. $a \in [1.5, 2.5]$ and $b \in [-8.5, -6]$

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

$$(7 - 10i)(2 + 8i)$$

A. $a \in [-70, -65]$ and $b \in [-78, -70]$

B. $a \in [11, 18]$ and $b \in [-83, -77]$

C. $a \in [91, 99]$ and $b \in [-41, -34]$

D. $a \in [-70, -65]$ and $b \in [72, 78]$

E. $a \in [91, 99]$ and $b \in [34, 37]$

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

$$\frac{9 - 66i}{3 + 5i}$$

A. $a \in [9.5, 11]$ and $b \in [-5, -3.5]$

B. $a \in [-10, -8.5]$ and $b \in [-8.5, -6]$

C. $a \in [-10, -8.5]$ and $b \in [-243.5, -242]$

D. $a \in [-304.5, -302]$ and $b \in [-8.5, -6]$

E. $a \in [2, 3.5]$ and $b \in [-13.5, -12.5]$

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

$$11 - 1^2 + 4 \div 8 * 10 \div 7$$

A. $[12.09, 14.12]$

B. $[9.13, 10.51]$

C. $[10.06, 10.93]$

D. $[11.32, 12.2]$

E. None of the above

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

$$\frac{\sqrt{182}}{6} + \sqrt{-3}i$$

A. Nonreal Complex

B. Irrational

C. Pure Imaginary

D. Rational

E. Not a Complex Number
