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

$$-\sqrt{\frac{190969}{529}}$$

A. Irrational

B. Not a Real number

C. Rational

D. Whole

E. Integer

---

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

$$(7 + 8i)(-10 - 5i)$$

A. $a \in [-117, -107]$ and $b \in [43, 51]$

B. $a \in [-117, -107]$ and $b \in [-46, -43]$

C. $a \in [-32, -28]$ and $b \in [-117, -112]$

D. $a \in [-72, -67]$ and $b \in [-40, -37]$

E. $a \in [-32, -28]$ and $b \in [114, 117]$

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

$$\frac{63 + 66i}{-3 + i}$$

A. $a \in [-123.5, -122.5]$ and $b \in [-27, -25.5]$

B. $a \in [-26.5, -24]$ and $b \in [-14, -13]$

C. $a \in [-22.5, -20.5]$ and $b \in [65, 67]$

D. $a \in [-14, -12]$ and $b \in [-262, -260.5]$

E. $a \in [-14, -12]$ and $b \in [-27, -25.5]$

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

$$\sqrt{\frac{-300}{5}}i + \sqrt{126}i$$

A. Not a Complex Number

B. Rational

C. Pure Imaginary

D. Irrational

E. Nonreal Complex

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

$$\frac{9 + 33i}{4 - 5i}$$

A. $a \in [-130.5, -127.5]$ and $b \in [4, 6]$

B. $a \in [-3.5, -2.5]$ and $b \in [176.5, 177.5]$

C. $a \in [-3.5, -2.5]$ and $b \in [4, 6]$

D. $a \in [4.5, 5.5]$ and $b \in [1.5, 3.5]$

E. $a \in [1.5, 3.5]$ and $b \in [-7.5, -6]$

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

$$3 - 8^2 + 1 \div 14 * 17 \div 6$$

A. $[-61.17, -60.85]$

B. $[67.12, 67.21]$

C. $[66.98, 67.09]$

D. $[-60.81, -60.7]$

E. None of the above

---

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

$$-\sqrt{\frac{213444}{441}}$$

A. Whole

B. Rational

C. Irrational

D. Integer

E. Not a Real number

---

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

$$\frac{-8}{-9} + 64i^2$$

A. Pure Imaginary

B. Rational

C. Not a Complex Number

D. Irrational

E. Nonreal Complex

---

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

$$13 - 12^2 + 9 \div 3 * 20 \div 14$$

A. $[157.29, 165.29]$

B. $[-127.71, -125.71]$

C. $[-137.99, -127.99]$

D. $[152.01, 159.01]$

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.

$$(-8 + 3i)(-9 - 10i)$$

A. $a \in [100, 107]$ and $b \in [50, 56]$

B. $a \in [42, 47]$ and $b \in [104, 108]$

C. $a \in [100, 107]$ and $b \in [-53, -48]$

D. $a \in [42, 47]$ and $b \in [-111, -102]$

E. $a \in [72, 77]$ and $b \in [-34, -27]$
