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

$$\sqrt{\frac{169}{400}}$$

A. Rational

B. Irrational

C. Not a Real number

D. Whole

E. Integer

---

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

$$(10 + 5i)(6 + 4i)$$

A. $a \in [79, 83]$ and $b \in [-14, -6]$

B. $a \in [35, 42]$ and $b \in [-72, -66]$

C. $a \in [53, 66]$ and $b \in [17, 25]$

D. $a \in [79, 83]$ and $b \in [8, 14]$

E. $a \in [35, 42]$ and $b \in [67, 76]$

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

$$\frac{-18 - 55i}{-6 + 4i}$$

A. $a \in [5, 8]$ and $b \in [4, 5.5]$

B. $a \in [-2.5, -2]$ and $b \in [401.5, 403.5]$

C. $a \in [-2.5, -2]$ and $b \in [6, 8]$

D. $a \in [1.5, 4.5]$ and $b \in [-14, -12.5]$

E. $a \in [-112.5, -111.5]$ and $b \in [6, 8]$

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

$$-\sqrt{\frac{2925}{15}} + 8i^2$$

A. Pure Imaginary

B. Irrational

C. Not a Complex Number

D. Nonreal Complex

E. Rational

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

$$\frac{18 + 77i}{1 - 6i}$$

A. $a \in [11.5, 13.5]$ and $b \in [-1.5, 0]$

B. $a \in [-13, -11]$ and $b \in [184, 185.5]$

C. $a \in [-13, -11]$ and $b \in [4, 5.5]$

D. $a \in [-445, -442.5]$ and $b \in [4, 5.5]$

E. $a \in [17, 18.5]$ and $b \in [-13.5, -11.5]$

---

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

$$20 - 5 \div 14 * 13 - (15 * 16)$$

A. $[255.97, 262.97]$

B. $[-229.64, -221.64]$

C. $[1.71, 9.71]$

D. $[-222.03, -214.03]$

E. None of the above

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

$$\sqrt{\frac{289}{100}}$$

A. Irrational

B. Whole

C. Integer

D. Rational

E. Not a Real number

---

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

$$\frac{4}{-19} + 81i^2$$

A. Pure Imaginary

B. Rational

C. Nonreal Complex

D. Not a Complex Number

E. Irrational

---

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

$$14 - 7^2 + 3 \div 16 * 12 \div 15$$

A. $[62.94, 63.1]$

B. $[-34.94, -34.81]$

C. $[-35.04, -34.93]$

D. $[63.02, 63.36]$

E. None of the above

---

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

$$(-3 - 7i)(4 - 8i)$$

A. $a \in [44, 47]$ and $b \in [50, 55]$

B. $a \in [-17, -11]$ and $b \in [54, 57]$

C. $a \in [44, 47]$ and $b \in [-55, -51]$

D. $a \in [-71, -66]$ and $b \in [4, 5]$

E. $a \in [-71, -66]$ and $b \in [-5, 2]$
