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

$$\sqrt{\frac{74529}{169}}$$

A. Not a Real number

B. Integer

C. Whole

D. Irrational

E. Rational

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

$$\sqrt{\frac{1547}{13}} + \sqrt{55}i$$

A. Irrational

B. Pure Imaginary

C. Rational

D. Nonreal Complex

E. Not a Complex Number

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

$$\sqrt{\frac{625}{169}}$$

A. Rational

B. Whole

C. Irrational

D. Integer

E. Not a Real number

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

$$18 - 1^2 + 20 \div 12 * 15 \div 9$$

A. $[19, 19.44]$

B. $[20.95, 22.53]$

C. $[16.03, 17.42]$

D. $[19.31, 19.82]$

E. None of the above

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

$$\frac{10}{2} + \sqrt{-9}i$$

A. Not a Complex Number

B. Irrational

C. Rational

D. Nonreal Complex

E. Pure Imaginary

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

$$\frac{-36 - 77i}{-3 + i}$$

A. $a \in [2, 5]$ and $b \in [266.5, 267.5]$

B. $a \in [17.5, 19.5]$ and $b \in [19, 20]$

C. $a \in [2, 5]$ and $b \in [26, 27]$

D. $a \in [11, 13.5]$ and $b \in [-77.5, -76]$

E. $a \in [29.5, 32.5]$ and $b \in [26, 27]$

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

$$(-10 + 4i)(2 + 7i)$$

A. $a \in [8, 12]$ and $b \in [76, 82]$

B. $a \in [-21, -17]$ and $b \in [24, 34]$

C. $a \in [-49, -45]$ and $b \in [-63, -61]$

D. $a \in [-49, -45]$ and $b \in [60, 69]$

E. $a \in [8, 12]$ and $b \in [-78, -75]$

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

$$\frac{45 - 22i}{-3 - 6i}$$

A. $a \in [-15.5, -13]$ and $b \in [2, 4.5]$

B. $a \in [-4, -2.5]$ and $b \in [7, 8]$

C. $a \in [-7.5, -5]$ and $b \in [-6, -4]$

D. $a \in [-0.5, 0.5]$ and $b \in [335.5, 337]$

E. $a \in [-0.5, 0.5]$ and $b \in [7, 8]$

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

$$16 - 15^2 + 19 \div 1 * 14 \div 18$$

A. $[-197.22, -193.22]$

B. $[253.78, 259.78]$

C. $[238.08, 244.08]$

D. $[-211.92, -206.92]$

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.

$$(-3 + 5i)(2 - 9i)$$

A. $a \in [38, 49]$ and $b \in [35, 38]$

B. $a \in [-51, -46]$ and $b \in [-20, -14]$

C. $a \in [38, 49]$ and $b \in [-40, -34]$

D. $a \in [-51, -46]$ and $b \in [16, 20]$

E. $a \in [-7, -1]$ and $b \in [-49, -44]$
