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

$$4 - 12^2 + 14 \div 10 * 20 \div 7$$

A. $[-139.99, -137.99]$

B. $[-138, -133]$

C. $[151, 154]$

D. $[147.01, 150.01]$

E. None of the above

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

$$(2 + 3i)(-4 - 10i)$$

A. $a \in [-10, -6]$ and $b \in [-31.9, -29.2]$

B. $a \in [19, 25]$ and $b \in [-33.9, -31.7]$

C. $a \in [19, 25]$ and $b \in [31.7, 34.7]$

D. $a \in [-44, -36]$ and $b \in [7.1, 10]$

E. $a \in [-44, -36]$ and $b \in [-11.7, -6.1]$

---

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

$$\frac{\sqrt{154}}{14} + 10i^2$$

A. Pure Imaginary

B. Irrational

C. Nonreal Complex

D. Rational

E. Not a Complex Number

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

$$\sqrt{\frac{32400}{400}}$$

A. Irrational

B. Not a Real number

C. Integer

D. Rational

E. Whole

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

$$-\sqrt{\frac{825}{5}} + 5i^2$$

A. Pure Imaginary

B. Not a Complex Number

C. Rational

D. Irrational

E. Nonreal Complex

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

$$20 - 13^2 + 15 \div 1 * 18 \div 10$$

A. $[189.08, 196.08]$

B. $[-151.92, -141.92]$

C. $[-126, -115]$

D. $[216, 220]$

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.

$$(-7 - 2i)(-9 - 4i)$$

A. $a \in [52, 60]$ and $b \in [45.4, 49.8]$

B. $a \in [68, 74]$ and $b \in [8.5, 11.6]$

C. $a \in [61, 69]$ and $b \in [7.9, 9.8]$

D. $a \in [52, 60]$ and $b \in [-48.3, -45.9]$

E. $a \in [68, 74]$ and $b \in [-10.2, -7.7]$

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

$$\sqrt{\frac{24}{0}}$$

A. Integer

B. Rational

C. Whole

D. Not a Real number

E. Irrational

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

$$\frac{36 + 77i}{3 - 8i}$$

A. $a \in [-7.5, -6.5]$ and $b \in [6, 8]$

B. $a \in [-7.5, -6.5]$ and $b \in [518.5, 519.5]$

C. $a \in [11.5, 12.5]$ and $b \in [-10, -8.5]$

D. $a \in [9, 11.5]$ and $b \in [-2, 1]$

E. $a \in [-508.5, -507.5]$ and $b \in [6, 8]$

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

$$\frac{9 + 88i}{-5 + 4i}$$

A. $a \in [306.5, 308.5]$ and $b \in [-12, -11]$

B. $a \in [6.5, 9]$ and $b \in [-477, -475]$

C. $a \in [-3, -1]$ and $b \in [21.5, 22.5]$

D. $a \in [6.5, 9]$ and $b \in [-12, -11]$

E. $a \in [-10.5, -8.5]$ and $b \in [-11, -8.5]$
