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

$$(2 - 4i)(-5 + 6i)$$

A. $a \in [13, 17]$ and $b \in [-32, -31]$

B. $a \in [13, 17]$ and $b \in [32, 35]$

C. $a \in [-34, -32]$ and $b \in [-11, -7]$

D. $a \in [-12, -7]$ and $b \in [-27, -21]$

E. $a \in [-34, -32]$ and $b \in [8, 9]$

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

$$\frac{45 + 88i}{-1 - 2i}$$

A. $a \in [-44.5, -44]$ and $b \in [-0.5, 1]$

B. $a \in [26, 26.5]$ and $b \in [-36, -35]$

C. $a \in [-44.5, -44]$ and $b \in [1.5, 2.5]$

D. $a \in [-222, -220.5]$ and $b \in [-0.5, 1]$

E. $a \in [-45.5, -44.5]$ and $b \in [-45.5, -43.5]$

---

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

$$\sqrt{\frac{361}{0}} + \sqrt{45}i$$

A. Not a Complex Number

B. Nonreal Complex

C. Pure Imaginary

D. Rational

E. Irrational

---

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

$$9 - 1 \div 12 * 6 - (11 * 10)$$

A. $[-101.87, -101.23]$

B. $[-101.49, -101]$

C. $[118.87, 119.35]$

D. $[-25.17, -24.88]$

E. None of the above

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

$$\sqrt{\frac{-1078}{14}}i + \sqrt{156}i$$

A. Pure Imaginary

B. Rational

C. Irrational

D. Not a Complex Number

E. Nonreal Complex

---

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

$$\frac{18 - 55i}{-7 - 8i}$$

A. $a \in [-3, -1.5]$ and $b \in [6.5, 8]$

B. $a \in [1.5, 3.5]$ and $b \in [4, 5.5]$

C. $a \in [312.5, 314.5]$ and $b \in [4, 5.5]$

D. $a \in [1.5, 3.5]$ and $b \in [528, 529.5]$

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

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

$$9 - 15 \div 14 * 8 - (16 * 4)$$

A. $[-64.05, -63.43]$

B. $[-62.63, -61.8]$

C. $[-56.03, -54.58]$

D. $[72.84, 74.4]$

E. None of the above

---

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

$$-\sqrt{\frac{490}{7}}$$

A. Integer

B. Not a Real number

C. Whole

D. Rational

E. Irrational

---

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

$$(-4 + 10i)(2 + 8i)$$

A. $a \in [70, 78]$ and $b \in [-56, -48]$

B. $a \in [70, 78]$ and $b \in [46, 55]$

C. $a \in [-88, -83]$ and $b \in [6, 15]$

D. $a \in [-12, -7]$ and $b \in [80, 83]$

E. $a \in [-88, -83]$ and $b \in [-15, -7]$

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

$$\sqrt{\frac{896}{8}}$$

A. Irrational

B. Integer

C. Rational

D. Whole

E. Not a Real number
