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

$$\frac{-27 - 11i}{6 + 8i}$$

A. $a \in [-5, -4]$ and $b \in [-2.5, 0]$

B. $a \in [-1, -0.5]$ and $b \in [-4, -2]$

C. $a \in [-3, -1.5]$ and $b \in [149.5, 151]$

D. $a \in [-3, -1.5]$ and $b \in [1, 2]$

E. $a \in [-252, -249]$ and $b \in [1, 2]$

---

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

$$\sqrt{\frac{53361}{121}}$$

A. Integer

B. Rational

C. Not a Real number

D. Irrational

E. Whole

---

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

$$\sqrt{\frac{-1092}{6}}i + \sqrt{238}i$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Irrational

E. Pure Imaginary

---

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

$$(-5 + 4i)(9 + 6i)$$

A. $a \in [-69, -68]$ and $b \in [4, 12]$

B. $a \in [-46, -38]$ and $b \in [22, 25]$

C. $a \in [-69, -68]$ and $b \in [-10, -2]$

D. $a \in [-24, -16]$ and $b \in [-67, -65]$

E. $a \in [-24, -16]$ and $b \in [61, 69]$

---

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

$$(-2 + 6i)(9 + 7i)$$

A. $a \in [20, 26]$ and $b \in [-70.3, -65]$

B. $a \in [-60, -58]$ and $b \in [37.7, 40.5]$

C. $a \in [20, 26]$ and $b \in [66, 69.5]$

D. $a \in [-60, -58]$ and $b \in [-41.4, -39.2]$

E. $a \in [-18, -16]$ and $b \in [40.7, 44.7]$

---

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

$$11 - 20^2 + 12 \div 5 * 14 \div 4$$

A. $[411.04, 415.04]$

B. $[-393.96, -386.96]$

C. $[-381.6, -372.6]$

D. $[417.4, 423.4]$

E. None of the above

---

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

$$\sqrt{\frac{-595}{7}} + \sqrt{0}i$$

A. Irrational

B. Nonreal Complex

C. Rational

D. Not a Complex Number

E. Pure Imaginary

---

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

$$19 - 4 \div 1 * 9 - (5 * 8)$$

A. $[-177, -169]$

B. $[-62, -56]$

C. $[-24.44, -18.44]$

D. $[52.56, 61.56]$

E. None of the above

---

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

$$-\sqrt{\frac{119025}{529}}$$

A. Rational

B. Not a Real number

C. Integer

D. Whole

E. Irrational

---

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

$$\frac{36 - 22i}{5 + 6i}$$

A. $a \in [3.5, 6]$ and $b \in [1.5, 3.5]$

B. $a \in [47, 48.5]$ and $b \in [-7, -4]$

C. $a \in [6.5, 8]$ and $b \in [-4.5, -3]$

D. $a \in [0.5, 2.5]$ and $b \in [-328, -325.5]$

E. $a \in [0.5, 2.5]$ and $b \in [-7, -4]$
