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

$$\frac{18 + 44i}{-8 - 3i}$$

A. $a \in [-5, -3]$ and $b \in [-5, -3]$

B. $a \in [-5, -3]$ and $b \in [-299.5, -297]$

C. $a \in [-278, -275]$ and $b \in [-5, -3]$

D. $a \in [-1.5, 0]$ and $b \in [-7.5, -5]$

E. $a \in [-3.5, -1]$ and $b \in [-15, -14]$

---

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

$$15 - 6^2 + 20 \div 9 * 5 \div 13$$

A. $[51.62, 52.12]$

B. $[-20.47, -19.44]$

C. $[50.8, 51.11]$

D. $[-21.33, -20.36]$

E. None of the above

---

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

$$(-5 + 2i)(-9 + 6i)$$

A. $a \in [31, 34]$ and $b \in [-52, -42]$

B. $a \in [56, 61]$ and $b \in [-13, -9]$

C. $a \in [31, 34]$ and $b \in [46, 53]$

D. $a \in [45, 49]$ and $b \in [12, 18]$

E. $a \in [56, 61]$ and $b \in [12, 18]$

---

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

$$\frac{\sqrt{130}}{10} + \sqrt{-7}i$$

A. Irrational

B. Not a Complex Number

C. Rational

D. Nonreal Complex

E. Pure Imaginary

---

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

$$\sqrt{\frac{127449}{441}}$$

A. Integer

B. Whole

C. Irrational

D. Rational

E. Not a Real number

---

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

$$\frac{18 + 55i}{6 + 7i}$$

A. $a \in [2.5, 3.5]$ and $b \in [7.5, 8.5]$

B. $a \in [492.5, 494.5]$ and $b \in [2, 3]$

C. $a \in [4, 6.5]$ and $b \in [2, 3]$

D. $a \in [-4.5, -3]$ and $b \in [5, 6.5]$

E. $a \in [4, 6.5]$ and $b \in [203, 205]$

---

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

$$\sqrt{\frac{0}{49}} + \sqrt{6}i$$

A. Not a Complex Number

B. Rational

C. Pure Imaginary

D. Nonreal Complex

E. Irrational

---

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

$$\sqrt{\frac{78400}{400}}$$

A. Integer

B. Irrational

C. Not a Real number

D. Rational

E. Whole

---

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

$$12 - 9 \div 6 * 4 - (10 * 16)$$

A. $[-69, -59]$

B. $[170.62, 176.62]$

C. $[-158, -152]$

D. $[-153.38, -146.38]$

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.

$$(5 - 8i)(-10 - 2i)$$

A. $a \in [-53, -49]$ and $b \in [13, 23]$

B. $a \in [-73, -61]$ and $b \in [66, 74]$

C. $a \in [-36, -31]$ and $b \in [90, 96]$

D. $a \in [-73, -61]$ and $b \in [-72, -69]$

E. $a \in [-36, -31]$ and $b \in [-92, -89]$
