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

$$\frac{27 - 22i}{-6 - 8i}$$

A. $a \in [-0.5, 0.5]$ and $b \in [3.35, 3.9]$

B. $a \in [13, 15]$ and $b \in [3.35, 3.9]$

C. $a \in [-0.5, 0.5]$ and $b \in [347.85, 348.05]$

D. $a \in [-4, -2.5]$ and $b \in [-1.6, -0.15]$

E. $a \in [-5.5, -3.5]$ and $b \in [2.35, 2.85]$

---

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

$$\sqrt{\frac{12996}{36}}$$

A. Not a Real number

B. Rational

C. Irrational

D. Integer

E. Whole

---

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

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

A. $a \in [72, 78]$ and $b \in [49, 59]$

B. $a \in [-94, -86]$ and $b \in [11, 15]$

C. $a \in [72, 78]$ and $b \in [-55, -50]$

D. $a \in [-94, -86]$ and $b \in [-14, -10]$

E. $a \in [-15, -5]$ and $b \in [79, 85]$

---

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

$$\frac{-2}{-13} + 81i^2$$

A. Pure Imaginary

B. Irrational

C. Not a Complex Number

D. Nonreal Complex

E. Rational

---

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

$$\frac{18 + 77i}{6 - 5i}$$

A. $a \in [-5, -3.5]$ and $b \in [8.5, 9.5]$

B. $a \in [-5, -3.5]$ and $b \in [551.5, 553.5]$

C. $a \in [2, 3.5]$ and $b \in [-16.5, -13.5]$

D. $a \in [7.5, 9.5]$ and $b \in [5.5, 6.5]$

E. $a \in [-278, -276]$ and $b \in [8.5, 9.5]$

---

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

$$17 - 19 \div 3 * 7 - (8 * 5)$$

A. $[-68.33, -60.33]$

B. $[-177.67, -172.67]$

C. $[55.1, 60.1]$

D. $[-24.9, -21.9]$

E. None of the above

---

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

$$(-7 - 4i)(-3 + 9i)$$

A. $a \in [56, 59]$ and $b \in [46, 52]$

B. $a \in [-16, -10]$ and $b \in [-83, -70]$

C. $a \in [-16, -10]$ and $b \in [75, 77]$

D. $a \in [17, 26]$ and $b \in [-36, -32]$

E. $a \in [56, 59]$ and $b \in [-51, -45]$

---

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

$$-\sqrt{\frac{-765}{9}}$$

A. Not a Real number

B. Rational

C. Integer

D. Irrational

E. Whole

---

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

$$\frac{-12}{2} + \sqrt{-49}i$$

A. Rational

B. Nonreal Complex

C. Not a Complex Number

D. Pure Imaginary

E. Irrational

---

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

$$2 - 3^2 + 8 \div 9 * 16 \div 17$$

A. $[-7.25, -6.31]$

B. $[10.84, 11.05]$

C. $[11.19, 12.39]$

D. $[-6.65, -5.89]$

E. None of the above
