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

$$\frac{-27 - 22i}{7 - 8i}$$

A. $a \in [-13.5, -12.95]$ and $b \in [-5, -3]$

B. $a \in [-0.4, -0.05]$ and $b \in [-372, -369.5]$

C. $a \in [-3.65, -2.55]$ and $b \in [0, 2]$

D. $a \in [-0.4, -0.05]$ and $b \in [-5, -3]$

E. $a \in [-4.15, -3.3]$ and $b \in [2.5, 3.5]$

---

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

$$\sqrt{\frac{324}{121}}$$

A. Integer

B. Rational

C. Irrational

D. Not a Real number

E. Whole

---

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

$$(-8 + 9i)(-2 + 5i)$$

A. $a \in [14, 24]$ and $b \in [45, 48]$

B. $a \in [59, 69]$ and $b \in [-22, -19]$

C. $a \in [59, 69]$ and $b \in [21, 28]$

D. $a \in [-32, -22]$ and $b \in [56, 61]$

E. $a \in [-32, -22]$ and $b \in [-58, -52]$

---

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

$$\frac{12}{-20} + \sqrt{-100}i$$

A. Not a Complex Number

B. Nonreal Complex

C. Irrational

D. Pure Imaginary

E. Rational

---

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

$$\frac{72 + 33i}{1 + 7i}$$

A. $a \in [5, 7.5]$ and $b \in [-10, -7.5]$

B. $a \in [70, 72.5]$ and $b \in [3, 5]$

C. $a \in [-4, -1.5]$ and $b \in [10, 11.5]$

D. $a \in [5, 7.5]$ and $b \in [-472.5, -470]$

E. $a \in [302.5, 303.5]$ and $b \in [-10, -7.5]$

---

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

$$3 - 20 \div 18 * 14 - (4 * 10)$$

A. $[37.92, 46.92]$

B. $[-166.56, -161.56]$

C. $[-42.08, -35.08]$

D. $[-54.56, -49.56]$

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.

$$(5 - 10i)(9 - 6i)$$

A. $a \in [104, 109]$ and $b \in [54, 68]$

B. $a \in [104, 109]$ and $b \in [-67, -58]$

C. $a \in [-18, -12]$ and $b \in [119, 126]$

D. $a \in [-18, -12]$ and $b \in [-120, -119]$

E. $a \in [40, 48]$ and $b \in [54, 68]$

---

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

$$\sqrt{\frac{1210}{11}}$$

A. Integer

B. Rational

C. Irrational

D. Whole

E. Not a Real number

---

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

$$\sqrt{\frac{-2178}{11}} + \sqrt{0}i$$

A. Pure Imaginary

B. Nonreal Complex

C. Not a Complex Number

D. Rational

E. Irrational

---

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

$$12 - 4^2 + 19 \div 1 * 8 \div 13$$

A. $[0.69, 14.69]$

B. $[-5.82, -2.82]$

C. $[26.18, 31.18]$

D. $[37.69, 40.69]$

E. None of the above
