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

$$(-3 + 7i)(10 - 6i)$$

A. $a \in [-74, -69]$ and $b \in [-58, -48]$

B. $a \in [-74, -69]$ and $b \in [51, 53]$

C. $a \in [9, 18]$ and $b \in [80, 92]$

D. $a \in [-31, -24]$ and $b \in [-46, -39]$

E. $a \in [9, 18]$ and $b \in [-90, -84]$

---

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

$$\frac{\sqrt{208}}{17} + 8i^2$$

A. Irrational

B. Pure Imaginary

C. Not a Complex Number

D. Rational

E. Nonreal Complex

---

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

$$\frac{-9 - 22i}{-4 + 8i}$$

A. $a \in [1.89, 2.48]$ and $b \in [-3.5, -2]$

B. $a \in [-1.86, -1.46]$ and $b \in [159.5, 160.5]$

C. $a \in [-140.08, -139.66]$ and $b \in [1.5, 3]$

D. $a \in [2.6, 2.89]$ and $b \in [0, 1]$

E. $a \in [-1.86, -1.46]$ and $b \in [1.5, 3]$

---

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

$$\sqrt{\frac{576}{25}}$$

A. Integer

B. Rational

C. Irrational

D. Whole

E. Not a Real number

---

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

$$\frac{-72 - 66i}{-1 + 3i}$$

A. $a \in [-13.5, -11]$ and $b \in [281, 283.5]$

B. $a \in [25.5, 28.5]$ and $b \in [-16, -14.5]$

C. $a \in [-128, -125.5]$ and $b \in [27.5, 29]$

D. $a \in [71, 72.5]$ and $b \in [-23.5, -21.5]$

E. $a \in [-13.5, -11]$ and $b \in [27.5, 29]$

---

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

$$9 - 15 \div 19 * 20 - (12 * 5)$$

A. $[-93.95, -90.95]$

B. $[66.96, 70.96]$

C. $[-52.04, -46.04]$

D. $[-68.79, -63.79]$

E. None of the above

---

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

$$\sqrt{\frac{22500}{36}}$$

A. Not a Real number

B. Rational

C. Whole

D. Irrational

E. Integer

---

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

$$17 - 9^2 + 19 \div 12 * 10 \div 2$$

A. $[104.92, 111.92]$

B. $[-58.08, -55.08]$

C. $[-64.92, -62.92]$

D. $[95.08, 103.08]$

E. None of the above

---

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

$$-\sqrt{\frac{49}{121}} + 25i^2$$

A. Pure Imaginary

B. Irrational

C. Rational

D. Nonreal Complex

E. Not a Complex Number

---

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

$$(8 + 7i)(3 + 5i)$$

A. $a \in [24, 29]$ and $b \in [34, 37]$

B. $a \in [54, 62]$ and $b \in [17, 22]$

C. $a \in [-16, -9]$ and $b \in [-62, -54]$

D. $a \in [-16, -9]$ and $b \in [60, 62]$

E. $a \in [54, 62]$ and $b \in [-22, -12]$
