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

$$6 - 20^2 + 10 \div 13 * 17 \div 15$$

A. $[-394.7, -393.3]$

B. $[406.7, 409.2]$

C. $[404.7, 406.2]$

D. $[-393.3, -392.5]$

E. None of the above

---

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

$$-\sqrt{\frac{490}{7}}$$

A. Rational

B. Irrational

C. Not a Real number

D. Whole

E. Integer

---

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

$$\sqrt{\frac{57600}{576}}$$

A. Not a Real number

B. Whole

C. Integer

D. Irrational

E. Rational

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

$$\frac{\sqrt{170}}{11} + \sqrt{-2}i$$

A. Nonreal Complex

B. Pure Imaginary

C. Rational

D. Irrational

E. Not a Complex Number

---

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

$$7 - 6^2 + 15 \div 1 * 13 \div 9$$

A. $[59.67, 67.67]$

B. $[-30.87, -26.87]$

C. $[42.13, 45.13]$

D. $[-10.33, -5.33]$

E. None of the above

---

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

$$\frac{-27 + 77i}{4 - 8i}$$

A. $a \in [-10, -7.5]$ and $b \in [0.5, 2.5]$

B. $a \in [-10, -7.5]$ and $b \in [91.5, 92.5]$

C. $a \in [5.5, 8]$ and $b \in [6, 8]$

D. $a \in [-7.5, -5.5]$ and $b \in [-11, -8.5]$

E. $a \in [-725.5, -723.5]$ and $b \in [0.5, 2.5]$

---

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

$$\sqrt{\frac{1664}{8}} + \sqrt{110}i$$

A. Pure Imaginary

B. Not a Complex Number

C. Rational

D. Irrational

E. Nonreal Complex

---

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

$$(-7 - 2i)(-5 - 8i)$$

A. $a \in [16, 26]$ and $b \in [-72, -60]$

B. $a \in [33, 38]$ and $b \in [15, 27]$

C. $a \in [50, 60]$ and $b \in [39, 47]$

D. $a \in [16, 26]$ and $b \in [64, 67]$

E. $a \in [50, 60]$ and $b \in [-46, -44]$

---

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

$$(-10 + 4i)(-2 + 7i)$$

A. $a \in [42, 50]$ and $b \in [62, 66]$

B. $a \in [-11, -4]$ and $b \in [-80, -75]$

C. $a \in [20, 24]$ and $b \in [26, 34]$

D. $a \in [42, 50]$ and $b \in [-66, -56]$

E. $a \in [-11, -4]$ and $b \in [74, 79]$

---

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

$$\frac{-9 - 88i}{4 + 2i}$$

A. $a \in [6, 7.5]$ and $b \in [-20, -17.5]$

B. $a \in [-12, -10]$ and $b \in [-335, -333.5]$

C. $a \in [-212.5, -211.5]$ and $b \in [-18, -16]$

D. $a \in [-2.5, -0.5]$ and $b \in [-45, -43.5]$

E. $a \in [-12, -10]$ and $b \in [-18, -16]$
