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

$$12 - 3^2 + 10 \div 8 * 14 \div 18$$

A. $[19.97, 21.49]$

B. $[2.65, 3.16]$

C. $[21.43, 22.28]$

D. $[3.82, 5.19]$

E. None of the above

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

$$\sqrt{\frac{193600}{400}}$$

A. Whole

B. Not a Real number

C. Integer

D. Irrational

E. Rational

---

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

$$(-6 - 7i)(8 + 9i)$$

A. $a \in [13, 20]$ and $b \in [-113, -107]$

B. $a \in [-50, -43]$ and $b \in [-65, -57]$

C. $a \in [13, 20]$ and $b \in [106, 113]$

D. $a \in [-117, -108]$ and $b \in [-2, 0]$

E. $a \in [-117, -108]$ and $b \in [1, 11]$

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

$$-\sqrt{\frac{1872}{9}} + 8i^2$$

A. Irrational

B. Nonreal Complex

C. Pure Imaginary

D. Rational

E. Not a Complex Number

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

$$\sqrt{\frac{43264}{256}}$$

A. Not a Real number

B. Whole

C. Integer

D. Rational

E. Irrational

---

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

$$\frac{9 + 66i}{4 + 2i}$$

A. $a \in [-6, -4.5]$ and $b \in [13, 14.5]$

B. $a \in [8, 10.5]$ and $b \in [12, 13]$

C. $a \in [167.5, 168.5]$ and $b \in [12, 13]$

D. $a \in [8, 10.5]$ and $b \in [245.5, 247]$

E. $a \in [1, 2.5]$ and $b \in [32, 33.5]$

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

$$\frac{-63 - 88i}{-3 + 5i}$$

A. $a \in [-8, -6]$ and $b \in [16.5, 17.5]$

B. $a \in [16.5, 19]$ and $b \in [-2, 0.5]$

C. $a \in [-251.5, -250]$ and $b \in [16.5, 17.5]$

D. $a \in [20, 21.5]$ and $b \in [-18.5, -17]$

E. $a \in [-8, -6]$ and $b \in [578.5, 579.5]$

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

$$(6 - 5i)(-2 + 4i)$$

A. $a \in [7, 13]$ and $b \in [32, 37]$

B. $a \in [-33, -29]$ and $b \in [8, 16]$

C. $a \in [-33, -29]$ and $b \in [-17, -13]$

D. $a \in [7, 13]$ and $b \in [-38, -32]$

E. $a \in [-14, -7]$ and $b \in [-26, -17]$

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

$$-\sqrt{\frac{1404}{12}} + 2i^2$$

A. Rational

B. Pure Imaginary

C. Nonreal Complex

D. Irrational

E. Not a Complex Number

---

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

$$20 - 15 \div 3 * 14 - (2 * 11)$$

A. $[-576, -570]$

B. $[-76, -68]$

C. $[-4.36, 2.64]$

D. $[40.64, 42.64]$

E. None of the above
