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

$$(6 + 4i)(-7 - 8i)$$

A. $a \in [-15, -6]$ and $b \in [73, 82]$

B. $a \in [-74, -72]$ and $b \in [-23, -16]$

C. $a \in [-15, -6]$ and $b \in [-76, -75]$

D. $a \in [-46, -35]$ and $b \in [-32, -30]$

E. $a \in [-74, -72]$ and $b \in [19, 29]$

---

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

$$-\sqrt{\frac{-1008}{8}}$$

A. Rational

B. Irrational

C. Not a Real number

D. Integer

E. Whole

---

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

$$12 - 9^2 + 1 \div 20 * 15 \div 2$$

A. $[-69.18, -68.95]$

B. $[92.75, 93.01]$

C. $[-68.66, -68.37]$

D. $[93.35, 94.09]$

E. None of the above

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

$$\sqrt{\frac{0}{12}} + \sqrt{7}i$$

A. Pure Imaginary

B. Not a Complex Number

C. Irrational

D. Rational

E. Nonreal Complex

---

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

$$\frac{54 + 44i}{-5 - i}$$

A. $a \in [-13, -11.5]$ and $b \in [-167.5, -165.5]$

B. $a \in [-11.5, -9.5]$ and $b \in [-45, -43]$

C. $a \in [-13, -11.5]$ and $b \in [-7, -6]$

D. $a \in [-10, -7.5]$ and $b \in [-11.5, -9]$

E. $a \in [-315, -313.5]$ and $b \in [-7, -6]$

---

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

$$\frac{63 - 66i}{-3 - 2i}$$

A. $a \in [-25.5, -24.5]$ and $b \in [4, 6.5]$

B. $a \in [-22.5, -20.5]$ and $b \in [32, 33.5]$

C. $a \in [-58, -56]$ and $b \in [23.5, 25.5]$

D. $a \in [-5.5, -3.5]$ and $b \in [323.5, 324.5]$

E. $a \in [-5.5, -3.5]$ and $b \in [23.5, 25.5]$

---

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

$$-\sqrt{\frac{171396}{529}}$$

A. Whole

B. Integer

C. Not a Real number

D. Rational

E. Irrational

---

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

$$\frac{4}{8} + 4i^2$$

A. Pure Imaginary

B. Not a Complex Number

C. Rational

D. Irrational

E. Nonreal Complex

---

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

$$(9 + 2i)(-8 - 3i)$$

A. $a \in [-66, -58]$ and $b \in [-46, -41]$

B. $a \in [-73, -71]$ and $b \in [-8, -4]$

C. $a \in [-83, -76]$ and $b \in [-14, -10]$

D. $a \in [-83, -76]$ and $b \in [4, 16]$

E. $a \in [-66, -58]$ and $b \in [39, 48]$

---

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

$$16 - 1^2 + 17 \div 18 * 14 \div 3$$

A. $[15.12, 17.86]$

B. $[18.1, 20.84]$

C. $[13.85, 16.67]$

D. $[20.31, 21.99]$

E. None of the above

---

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

$$(4 + 9i)(10 + 2i)$$

A. $a \in [52, 61]$ and $b \in [80, 83]$

B. $a \in [52, 61]$ and $b \in [-84, -80]$

C. $a \in [35, 42]$ and $b \in [15, 20]$

D. $a \in [18, 24]$ and $b \in [97, 100]$

E. $a \in [18, 24]$ and $b \in [-100, -94]$

---

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

$$-\sqrt{\frac{202500}{625}}$$

A. Not a Real number

B. Integer

C. Whole

D. Irrational

E. Rational

---

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

$$12 - 15^2 + 18 \div 4 * 11 \div 16$$

A. $[-215.2, -211.5]$

B. $[-211.2, -207.9]$

C. $[235.8, 237.6]$

D. $[237.9, 242.8]$

E. None of the above

---

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

$$\frac{\sqrt{182}}{6} + \sqrt{-5}i$$

A. Rational

B. Pure Imaginary

C. Irrational

D. Not a Complex Number

E. Nonreal Complex

---

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

$$\frac{54 + 11i}{7 + 2i}$$

A. $a \in [7.7, 7.84]$ and $b \in [4.5, 6.5]$

B. $a \in [6.7, 6.84]$ and $b \in [3, 5]$

C. $a \in [7.41, 7.57]$ and $b \in [-1.5, 1]$

D. $a \in [399.9, 400.11]$ and $b \in [-1.5, 1]$

E. $a \in [7.41, 7.57]$ and $b \in [-31.5, -30.5]$

---

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

$$\frac{36 - 22i}{6 + 8i}$$

A. $a \in [-0.5, 1.5]$ and $b \in [-5, -4]$

B. $a \in [5, 7]$ and $b \in [-3, -1.5]$

C. $a \in [39.5, 41]$ and $b \in [-5, -4]$

D. $a \in [-0.5, 1.5]$ and $b \in [-420.5, -419]$

E. $a \in [3, 4.5]$ and $b \in [1, 2.5]$

---

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

$$-\sqrt{\frac{-882}{7}}$$

A. Whole

B. Irrational

C. Not a Real number

D. Rational

E. Integer

---

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

$$\sqrt{\frac{0}{169}} + \sqrt{10}i$$

A. Rational

B. Irrational

C. Nonreal Complex

D. Pure Imaginary

E. Not a Complex Number

---

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

$$(2 + 8i)(-4 - 5i)$$

A. $a \in [-48, -46]$ and $b \in [21.2, 23]$

B. $a \in [27, 40]$ and $b \in [-43.5, -41.7]$

C. $a \in [27, 40]$ and $b \in [38.7, 44.6]$

D. $a \in [-48, -46]$ and $b \in [-26.3, -20.6]$

E. $a \in [-9, -5]$ and $b \in [-41.7, -37.8]$

---

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

$$18 - 20 \div 15 * 19 - (17 * 7)$$

A. $[134.93, 137.93]$

B. $[-106.07, -98.07]$

C. $[-172.33, -168.33]$

D. $[-130.33, -121.33]$

E. None of the above

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

$$(-7 - 2i)(9 + 10i)$$

A. $a \in [-86, -80]$ and $b \in [49, 54]$

B. $a \in [-63, -62]$ and $b \in [-23, -18]$

C. $a \in [-86, -80]$ and $b \in [-53, -49]$

D. $a \in [-45, -41]$ and $b \in [86, 91]$

E. $a \in [-45, -41]$ and $b \in [-92, -86]$

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

$$\sqrt{\frac{58564}{484}}$$

A. Rational

B. Not a Real number

C. Irrational

D. Whole

E. Integer

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

$$16 - 17 \div 9 * 19 - (15 * 18)$$

A. $[280.9, 288.9]$

B. $[-255.1, -251.1]$

C. $[-291.89, -288.89]$

D. $[-634, -623]$

E. None of the above

---

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

$$\sqrt{\frac{-910}{13}} + \sqrt{126}$$

A. Nonreal Complex

B. Pure Imaginary

C. Not a Complex Number

D. Irrational

E. Rational

---

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

$$\frac{-18 - 44i}{-6 - 3i}$$

A. $a \in [4.5, 7]$ and $b \in [3.5, 6]$

B. $a \in [-1, 1]$ and $b \in [6.5, 9]$

C. $a \in [239.5, 241]$ and $b \in [3.5, 6]$

D. $a \in [4.5, 7]$ and $b \in [209.5, 211]$

E. $a \in [2, 3.5]$ and $b \in [14, 15.5]$

---

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

$$\frac{-27 - 88i}{2 + 5i}$$

A. $a \in [-495, -493]$ and $b \in [-2, -1]$

B. $a \in [12.5, 14]$ and $b \in [-11.5, -10.5]$

C. $a \in [-17.5, -16]$ and $b \in [-42.5, -40]$

D. $a \in [-14, -12.5]$ and $b \in [-18.5, -16]$

E. $a \in [-17.5, -16]$ and $b \in [-2, -1]$

---

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

$$\sqrt{\frac{945}{9}}$$

A. Rational

B. Irrational

C. Whole

D. Not a Real number

E. Integer

---

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

$$\sqrt{\frac{-1170}{13}} + \sqrt{0}i$$

A. Pure Imaginary

B. Irrational

C. Rational

D. Not a Complex Number

E. Nonreal Complex

---

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

$$(-4 + 10i)(5 - 9i)$$

A. $a \in [-20, -19]$ and $b \in [-93, -88]$

B. $a \in [65, 72]$ and $b \in [84, 92]$

C. $a \in [65, 72]$ and $b \in [-89, -81]$

D. $a \in [-118, -109]$ and $b \in [14, 21]$

E. $a \in [-118, -109]$ and $b \in [-19, -7]$

---

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

$$10 - 5^2 + 12 \div 6 * 3 \div 7$$

A. $[-14.21, -14.03]$

B. $[34.97, 35.32]$

C. $[-15.23, -14.82]$

D. $[35.6, 36.47]$

E. None of the above
