

FALL 2014 MATH 1314 REVIEW EXAM 1

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Perform the indicated operations. Simplify the answer.

1) $\sqrt{-19} \cdot \sqrt{-19}$ 1) _____
A) $-19i$ B) -19 C) 19 D) $19i$

2) $\frac{\sqrt{-81}}{\sqrt{-9}}$ 2) _____
A) $3i$ B) $-3i$ C) 3 D) -3

Perform the indicated operation. Write the result in standard form.

3) $(3 - 2i) + (7 + 9i)$ 3) _____
A) $-4 + 11i$ B) $10 - 7i$ C) $10 + 7i$ D) $-10 - 7i$

4) $(3 + 7i) - (-7 + i)$ 4) _____
A) $-10 - 6i$ B) $-4 + 8i$ C) $10 - 6i$ D) $10 + 6i$

Find the product. Write the answer in standard form.

5) $(9 - 4i)(6 + 6i)$ 5) _____
A) $30 - 78i$ B) $78 + 30i$ C) $78 - 30i$ D) $-24i^2 + 30i - 54$

6) $(6 + 3i)^2$ 6) _____
A) $27 - 36i$ B) $45 - 36i$ C) $27 + 36i$ D) $45 + 36i$

Simplify the power of i .

7) i^{56} 7) _____
A) $-i$ B) -1 C) i D) 1

8) i^{34} 8) _____
A) 1 B) i C) -1 D) $-i$

9) i^{51} 9) _____
A) 1 B) $-i$ C) -1 D) i

10) i^{69} 10) _____
A) 1 B) i C) $-i$ D) -1

Find the quotient. Write the answer in standard form.

11) $\frac{5 - 5i}{5 - 8i}$ 11) _____
A) $\frac{5}{13} + \frac{5}{13}i$ B) $\frac{65}{89} + \frac{15}{89}i$ C) $-\frac{5}{3} + \frac{5}{13}i$ D) $-\frac{15}{89} + \frac{65}{89}i$

Solve.

12) $x^2 = -9$ 12) _____
A) $\pm \sqrt{3}$ B) $\pm i\sqrt{3}$ C) ± 3 D) $\pm 3i$

13) $x^2 = -27$ 13) _____
A) $\pm 9\sqrt{3}$ B) $\pm 3\sqrt{3}$ C) $\pm 9i\sqrt{3}$ D) $\pm 3i\sqrt{3}$

Solve the equation by the zero-factor property.

14) $x^2 + 6x - 16 = 0$ 14) _____
A) $\{-8, 2\}$ B) $\{-2, 8\}$ C) $\{2, 8\}$ D) $\{-8, -2\}$

Use the square root property to solve the equation.

15) $(x - 4)^2 = 13$ 15) _____
A) $\{4 + \sqrt{13}\}$ B) $\{\sqrt{13} - 4, -\sqrt{13} - 4\}$
C) $\{4 \pm \sqrt{13}\}$ D) $\{\sqrt{13} - \sqrt{-4}\}$

Solve the equation using the quadratic formula.

16) $2x^2 + 12x = -7$ 16) _____
A) $\left\{\frac{-6 \pm \sqrt{2}}{2}\right\}$ B) $\left\{\frac{-6 \pm \sqrt{22}}{2}\right\}$ C) $\left\{\frac{-12 \pm \sqrt{22}}{2}\right\}$ D) $\left\{\frac{-6 \pm \sqrt{22}}{4}\right\}$

Decide what values of the variable cannot possibly be solutions for the equation.

17) $\frac{1}{x-5} + \frac{1}{x+9} = 10$ 17) _____
A) -5, 9 B) -9, 5 C) $-\frac{1}{9}, \frac{1}{5}$ D) $-\frac{1}{5}, \frac{1}{9}$

Solve the equation.

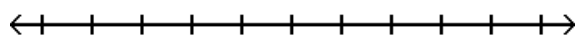
18) $\frac{2}{x+9} + \frac{5}{x+2} = \frac{3}{x^2 + 11x + 18}$ 18) _____
A) -1 B) $-\frac{44}{5}$ C) $-\frac{46}{7}$ D) $\emptyset$

19) $\sqrt{x+3} = x-3$ 19) _____
A) $\{6, 13\}$ B) $\{1, 13\}$ C) $\{1, 6\}$ D) $\{6\}$

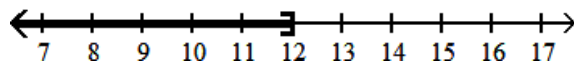
Solve and graph the inequality. Give answer in interval notation.

20) $-13x + 6 \geq -12x - 6$

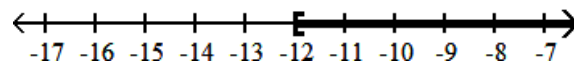
20) _____



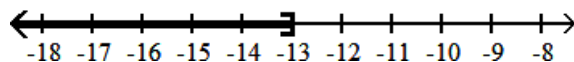
A) $(-\infty, 12]$



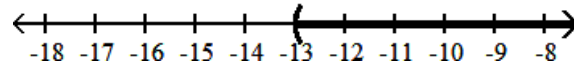
B) $[-12, \infty)$



C) $(-\infty, -13]$

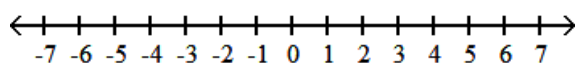


D) $(-13, \infty)$

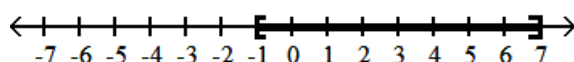


21) $-1 \leq \frac{x+1}{2} \leq 3$

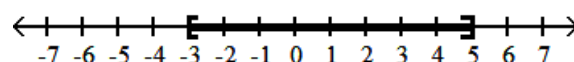
21) _____



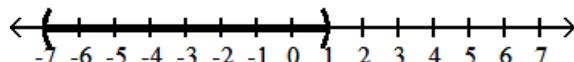
A) $[-1, 7]$



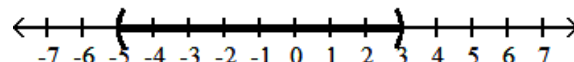
B) $[-3, 5]$



C) $(-7, 1)$



D) $[-5, 3]$



Solve the quadratic inequality. Write the solution set in interval notation.

22) $x^2 - 4x - 5 < 0$

22) _____

A) $(-\infty, -1) \cup (5, \infty)$

B) $(-\infty, -1)$

C) $(-1, 5)$

D) $(5, \infty)$

23) $x^2 - 11x + 28 \geq 0$

23) _____

A) $(-\infty, 4]$

B) $[4, 7]$

C) $(-\infty, 4] \cup [7, \infty)$

D) $[7, \infty)$

Solve the rational inequality. Write the solution set in interval notation.

24) $\frac{x-7}{x+8} \leq 0$

24) _____

A) $[-8, 7]$

B) $[-7, 8]$

C) $(-7, 8]$

D) $(-8, 7]$

Solve the equation.

25) $\left| \frac{7x+1}{8} \right| = 2$

25) _____

A) $\left\{ \frac{15}{7}, -\frac{17}{7} \right\}$

B) $\left\{ \frac{1}{4}, -\frac{3}{4} \right\}$

C) $\left\{ \frac{17}{4}, -\frac{15}{4} \right\}$

D) $\left\{ \frac{15}{7} \right\}$

Solve the inequality. Write the solution set in interval notation.

26) $|3 + 3x| > 2$

A) $\left(-\infty, -\frac{5}{3}\right) \cup \left(-\frac{1}{3}, \infty\right)$

C) $\left(-\frac{5}{3}, -\frac{1}{3}\right)$

B) $\left(-\infty, 1\right) \cup \left(\frac{7}{3}, \infty\right)$

D) $\left(-\frac{1}{3}, \frac{5}{3}\right)$

26) _____

Solve.

27) $|2x + 5| - 7 < -3$

A) $\left(-\frac{9}{2}, -\frac{1}{2}\right)$

C) $\left(-\infty, -\frac{9}{2}\right) \cup \left(-\frac{1}{2}, \infty\right)$

B) $\left(-\infty, -\frac{9}{2}\right)$

D) $\emptyset$

27) _____