

MATH 115  
Test 1 Review

Solve the equation.

1)  $\frac{9x}{2} + 9 = \frac{1}{2}$

1) \_\_\_\_\_

2)  $\frac{2}{x} - \frac{1}{3} = \frac{5}{x}$

2) \_\_\_\_\_

3)  $\frac{1}{x} + \frac{1}{x+8} = \frac{x+9}{x+8}$

3) \_\_\_\_\_

4)  $\frac{7}{y+3} - \frac{5}{y-3} = \frac{4}{y^2-9}$

4) \_\_\_\_\_

5)  $1 + \frac{1}{x} = \frac{30}{x^2}$

5) \_\_\_\_\_

6)  $\frac{5}{x+2} = \frac{4}{x-3}$

6) \_\_\_\_\_

7)  $\sqrt{x-2} = 4$

7) \_\_\_\_\_

8)  $\sqrt{3x+2} = 3$

8) \_\_\_\_\_

9)  $\sqrt{5x-6} = 4-x$

9) \_\_\_\_\_

10)  $\sqrt{2x+2} = x-2$

10) \_\_\_\_\_

11)  $x^4 - 40x^2 + 144 = 0$

11) \_\_\_\_\_

12)  $x^4 - 18x^2 + 32 = 0$

12) \_\_\_\_\_

Multiply. Write the result in the form  $a + bi$ .

13)  $(8 + 5i)(4 + 9i)$

13) \_\_\_\_\_

14)  $(9 - 2i)(5 + 8i)$

14) \_\_\_\_\_

Divide.

15)  $\frac{2 + 7i}{9 + 8i}$

15) \_\_\_\_\_

16)  $\frac{1 - 8i}{5 - 8i}$

16) \_\_\_\_\_

Solve the problem.

17) If 4 apples cost \$2.00, how much would 10 apples cost?

17) \_\_\_\_\_

18) A painter can finish painting a house in 4 hours. Her assistant takes 6 hours to finish the same job. How long would it take for them to complete the job if they were working together?

18) \_\_\_\_\_

19) An object is thrown upward from the top of a 160-foot building with an initial velocity of 48 feet per second. The height  $h$  of the object after  $t$  seconds is given by the quadratic equation  $h = -16t^2 + 48t + 160$ . When will the object hit the ground?

19) \_\_\_\_\_

20) If  $h = -16t^2 + 224t$  represents the height of a firework, in feet,  $t$  seconds after it was fired, when will the firework be 784 feet high?

20) \_\_\_\_\_

Solve for the indicated variable.

21) Solve  $r = \sqrt{\frac{3V}{\pi h}}$  for  $V$ .

21) \_\_\_\_\_

22) Solve  $x = \sqrt{r^2 - y^2}$  for  $r$ .

22) \_\_\_\_\_

23) Solve  $\frac{1}{a} + \frac{1}{b} = \frac{1}{c}$  for  $b$ .

23) \_\_\_\_\_

Answer Key

Testname: MATH 115 TEST 1 REVIEW

- 1)  $\left\{-\frac{17}{9}\right\}$
- 2)  $\{-9\}$
- 3)  $\{1\}$
- 4)  $\{20\}$
- 5)  $\{-6, 5\}$
- 6)  $\{23\}$
- 7)  $\{18\}$
- 8)  $\left\{\frac{7}{3}\right\}$
- 9)  $\{2\}$
- 10)  $\{8\}$
- 11)  $\{-2, 2, -6, 6\}$
- 12)  $\{-4, 4, -\sqrt{2}, \sqrt{2}\}$
- 13)  $-13 + 92i$
- 14)  $61 + 62i$
- 15)  $\frac{74}{145} + \frac{47}{145}i$
- 16)  $\frac{69}{89} - \frac{32}{89}i$
- 17) \$5.00
- 18)  $2\frac{2}{5}$  hr
- 19) 5 sec
- 20) 7 sec
- 21)  $V = \frac{\pi r^2 h}{3}$
- 22)  $r = \sqrt{x^2 + y^2}$
- 23)  $b = \frac{ac}{a - c}$