

Math 170
Chapter 1 Review
Ms. Meier

Solve each algebraically:

1) $\frac{1}{x-7} - \frac{64}{x^2} = 0$

2) $\sqrt{4x+16} + 4 = x$

3) $8y^2 - y - \frac{1}{8} = 0$

4) $|3x+1| - 2 = 5$

Graphically solve, find all real solutions to two decimal places:

5) $x^3 - 3x^2 - x - 3 = 0$

6) $x^3 - 14x^2 + 55x - 42 = 0$

Solve each inequality, graph the solution on a number line, then state the answer in interval notation:

7) $-5 < 5 - 2x \leq -4$

8) $x^2 - 2x \leq 24$

9) $|x+2| \geq 1$

10) Find the equation for the circle with endpoints of the diameter (2,2) and (3,8)

11) Find the center and the radius of the circle: $x^2 + y^2 - 6x + 4y - 3 = 0$

12) Find the equation of the line that contains (2,4) and (1,6)

13) Find the equation of the line that contains (-2,-3) and is perpendicular to $5x + 6y + 7 = 0$

14) Do the graphs of $y = 8 - 2x - x^2$ and $y = 2x + 12$ intersect in the viewing window $[-6,2]$ by $[-5,14]$? If so, how many times?

15) Simplify to a single expression, in factored form: $\frac{2(2x-5) \cdot 2 \cdot (x+4) - 1(2x-5)^2}{(x+4)^2}$

16) Simplify to a single expression, in factored form: $\frac{2(3x+1)^2 - 2(3x+1) \cdot 3(2x+3)}{(3x+1)^2}$

Answers:

1) $x = 8, x = 56$ 2) $x = 12$ 3) $y = \frac{1 \pm \sqrt{5}}{16}$ 4) $x = 2, x = -8/3$ 5) $x = 3.53$

6) $x = 1, x = 6, x = 7$ 7) $[\frac{9}{2}, 5)$ 8) $[-4, 6]$ 9) $(-\infty, -3] \cup [-1, \infty)$

10) $(x - \frac{5}{2})^2 + (y - 5)^2 = \frac{37}{4}$ 11) center $(3, -2)$ radius 4 12) $y = -2x + 8$

13) $y = \frac{6}{5}x - \frac{3}{5}$ 14) they intersect once 15) $\frac{(2x-5)(2x+21)}{(x+4)^2}$

16) $\frac{-2(3x+8)}{(3x+1)}$