

Review Sheet for Test #2

1) Find the roots, y-intercept, and vertex of the parabola $y = x^2 + 7x + 10$. Then graph it, labeling the roots, y-intercept, and vertex.

2) Write the equation of the line that intersects the points $(-8, -6)$ and $(-2, 2)$

Reduce the rational expression

3) $\frac{n^2-25}{n^5+5n^4}$

4) $\frac{y-9}{y^2-15y+54}$

Solve the equation and check your answer

5) $x - 7 = \sqrt{3x - 21}$

6) $\sqrt{x + 1} + 5 = x$

7) Evaluate without a calculator. $\text{Log}_3\left(\frac{1}{243}\right)$

8) Solve using the quadratic formula. Express your answer in simplest form.

$$5x^2 - 10x - 10 = 0$$

9) Simplify using complex numbers. $(9 + 5i)(-3 + 4i)$

10) Rationalize the denominator. $\frac{2-\sqrt{7}}{5+\sqrt{7}}$

Solve for x to the nearest thousandth.

11) $4^{2x} = 6,347$

12) $e^{x+8} = 986$

13) Solve the nonlinear system of equations. Express your answer(s) as ordered pairs.

$$x^2 + 3y^2 = 28$$

$$3x^2 + 3y^2 = 60$$

14) Perform the indicated operations. $2x\sqrt{45} + \sqrt{20x^2} - 8x\sqrt{45}$

15) Simplify i^{124}

16) Simplify i^{255}

17) Perform the indicated operation and express in simplest form.

$$\frac{x+2}{x-7} - \frac{x^2+4x+13}{x^2-4x-21}$$

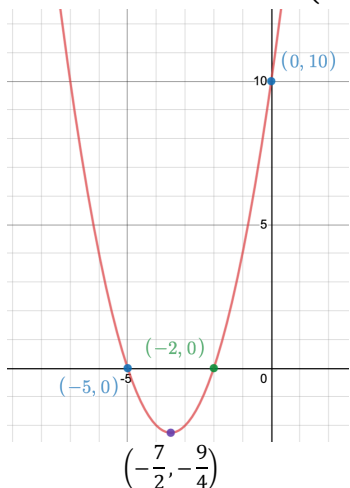
18) Put the equation of the circle in standard form and identify the center and radius. Then graph the circle, labeling 4 points.

$$x^2 + y^2 - 8x - 12y + 9 = 0$$

Answer Key

1) $(-5,0) (-2,0) (0,10) \left(-\frac{7}{2}, -\frac{9}{4}\right)$

2) $y = \frac{4}{3}x + \frac{14}{3}$



3) $\frac{n-5}{n^4}$

4) $\frac{1}{y-6}$

5) $n = 10, n = 7$

6) $x = 8, x = 3$

7) -5

8) $x = 1 \pm \sqrt{3}$

9) $-7 + 21i$

10) $\frac{3-7\sqrt{7}}{18}$

11) $x = 3.156$

12) $x = -1.106$

13) $(4, 2)(4, -2)(-4, 2)(-4, -2)$

14) $-16x\sqrt{5}$

15) 1

16) $-i$

17) $\frac{1}{x+3}$

18) $(x-4)^2 + (y-6)^2 = 43$ Center: $(4, 6)$ Radius: $\sqrt{43}$

