

**Review Sheet for Test #2**

Evaluate without using a calculator

1)  $\text{Log}_5\left(\frac{1}{125}\right)$

2)  $\text{Log}_3(81)$

Solve the equation and round your answer to 3 decimal places.

3)  $6^{2x} = 8249$

4)  $3^{5x} = 749$

Condense the expressions into a single logarithm.

5)  $12\log(a) + \frac{1}{2}\log(b)$

6)  $48\log(n) - 25\log(w)$

Translate into radical form and evaluate.

7)  $64^{\frac{2}{3}}$

8)  $32^{\frac{3}{5}}$

Rationalize the denominator.

9)  $\frac{9}{5+\sqrt{7}}$

10)  $\frac{3}{6-\sqrt{3}}$

Solve the equation and check your answer(s).

11)  $\frac{x}{x-2} - \frac{9}{x^2-2x} = 0$

12)  $\sqrt{4x+21} + 4 = 5$

Perform the indicated operation.

13)  $8y\sqrt{24x^6y^{11}} - x\sqrt{54x^4y^{13}}$

14)  $5a\sqrt{72a^2} + 4a^2\sqrt{18}$

Simplify.

15)  $\left(\frac{3n^6c^{-2}}{5n^{-4}c^{-7}}\right)^{-3}$

16)  $\left(\frac{6x^5y^{-2}}{5y^9x^{-4}}\right)^2$

Solve the nonlinear system of equations.

17)  $x^2 + y^2 = 18$

$5x^2 + y^2 = 54$

Perform the indicated operation. Are these expressions or equations?

18)  $\frac{x+5}{x-6} + \frac{-9x-78}{x^2-36}$

19)  $\frac{6y+22}{5y+10} - \frac{y+4}{y+2}$

For the function given, find the roots (simplest form), the y-intercept, and the vertex. Then graph the function using the points found.

20)  $y = x^2 + 2x - 4$

Put the equation of the circle into standard form. Then identify the center and radius. Lastly, graph the circle on an xy axis, labeling the center and 4 points.

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

Simplify the expression. Then verify your answer by selecting a non-zero value for x and substituting into both the original expression and your answer.

22)  $\frac{\frac{4}{x^2} + \frac{1}{x}}{\frac{16}{x^2} - 1}$

23)  $\frac{\frac{2}{t} - \frac{3}{t+8}}{\frac{2}{t+8} - \frac{3}{t}}$

## Answer Key

1)  $\frac{1}{3}$

2) 4

3)  $x = 2.516$

4)  $x = 1.205$

5)  $\text{Log}(a^{12}\sqrt{b})$

6)  $\text{Log}\left(\frac{n^{48}}{w^{25}}\right)$

7) 16

8) 8

9)  $\frac{5-\sqrt{7}}{2}$

10)  $\frac{6+\sqrt{3}}{11}$

11)  $x = 3, x = -3$

12)  $x = -5$

13)  $13x^3y^6\sqrt{6y}$

14)  $42a^2\sqrt{2}$

15)  $\frac{125}{27c^{15}n^{30}}$

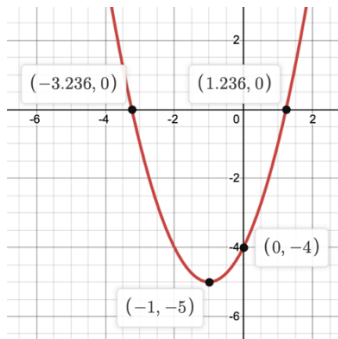
16)  $\frac{36x^{18}}{25y^{22}}$

17)  $(-3, -3), (-3, 3), (3, -3), (3, 3)$

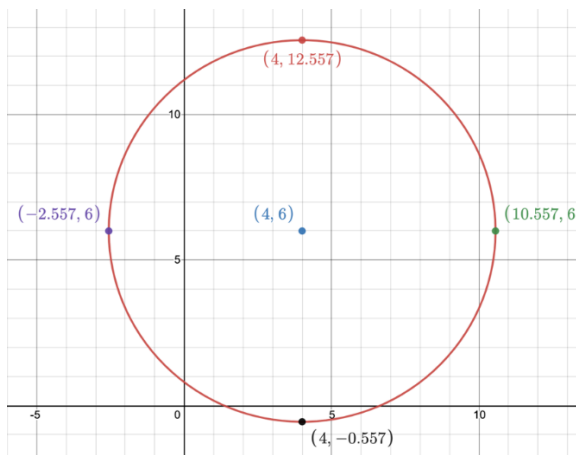
18)  $\frac{x+8}{x+7}$

19)  $\frac{1}{5}$

20) Roots:  $x = -1 - \sqrt{5}, -1 + \sqrt{5}$  y-intercept:  $(0, -4)$  Vertex:  $(-1, -5)$



21)  $(x - 4)^2 + (y - 6)^2 = 43$  C:  $(4, 6)$  r:  $\sqrt{43}$



22)  $\frac{1}{4-x}$

23)  $\frac{t-16}{t+24}$