Calculus Readiness Self-Assessment

This Calculus Readiness Tool may be used to self-assess your preparation for Calculus I. Mastery of the concepts and skills included in this tool are critical for success in Calculus 1.

Guidelines:

- For an accurate assessment of your readiness, take this test without any help aids, including any sort of calculator.
- Other than a brief review, try not to `study' for this assessment. You want to truly assess what you know now.
- Show all of your steps clearly so that your reasoning is clear.
- Work through the problems within a two-hour window.

When you nish, return to the TTU Math department website to nd the answer document and score your work.

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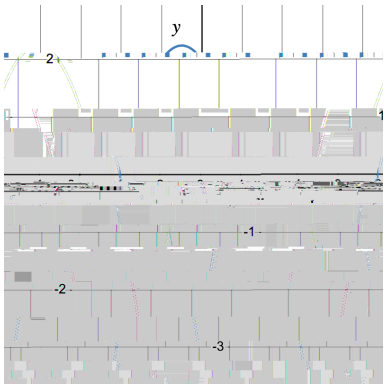
1. If $f(x) = \frac{x^2-5}{x+5}$, then nd $f(a+2)$.
2. Find the slope-intercept equation of the line which passes through the point $(-5; 1)$ and is parallel to the line through the points $(3; 7)$ and $(1; -1)$
3. If f is a function whose graph is shown below, give the solution to the inequality $f(x) > 0$.



4. Find all solutions, if any, to the following:
   (a) $\sqrt{5x+2} - 4 = 6$
   (b) $|3x - 2| \geq 1$
5. Determine whether the following functions are invertible. If the function is invertible, nd the inverse. If the function is not invertible, explain why not.

(a) $f(x) = \frac{x}{x+2}$

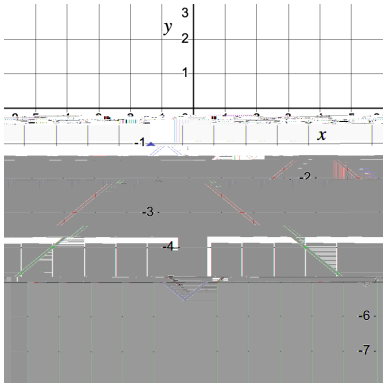
(b) $g(x) = (x - 1)^2 + 3$

6. Simplify each of the following expressions fully, so that x and y appear once.

(a) $\frac{x^3y^5x^{-2}}{x^{-2}y^2}$

(b) $\frac{\sqrt[4]{16x^6y^{14}}}{\sqrt[5]{x^2y^5}}$

7. Given the double-angle identity $\cos(2x) = 1 -$



15. Find the values of the remaining ve trigonometric ratios if $\tan(x) = 2$ and $0 < x < \frac{\pi}{2}$:

16. Given that the hyperbolic cosine function is de ned as $\cosh(x) = e^{x} +$