Review for Exam 1
MA 105

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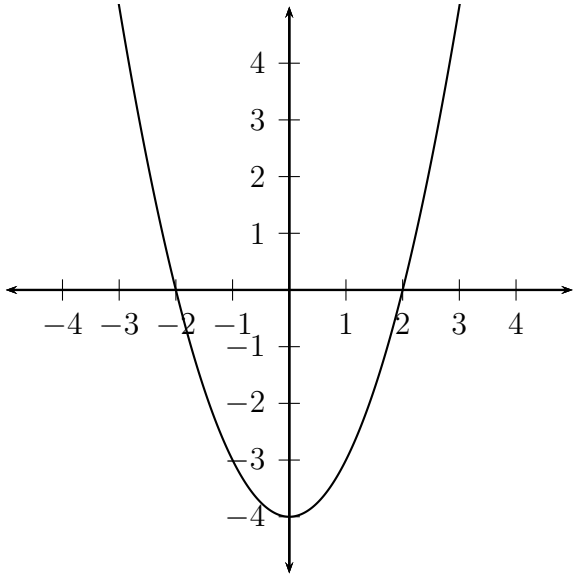
1) Find the standard form of the equation of the circle whose diameter has endpoints $(1, 2)$ and $(-5, -6)$.

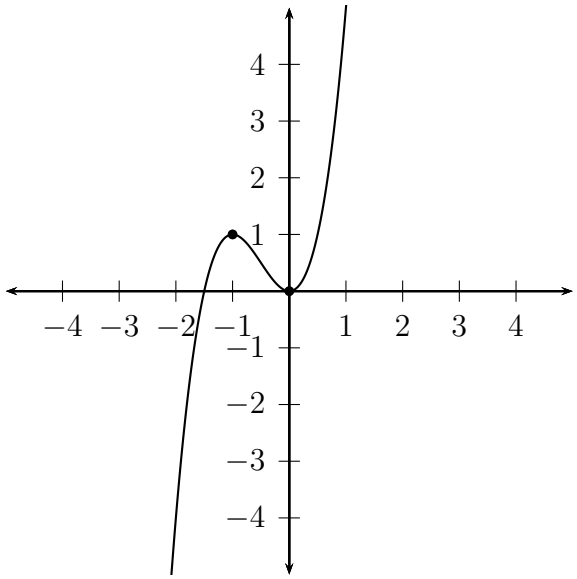
2) Graph the function $f(x) = (x - 2)^3 + 1$ using standard techniques. Find its domain and range.

3) List the x- and y-intercepts and find any symmetries.

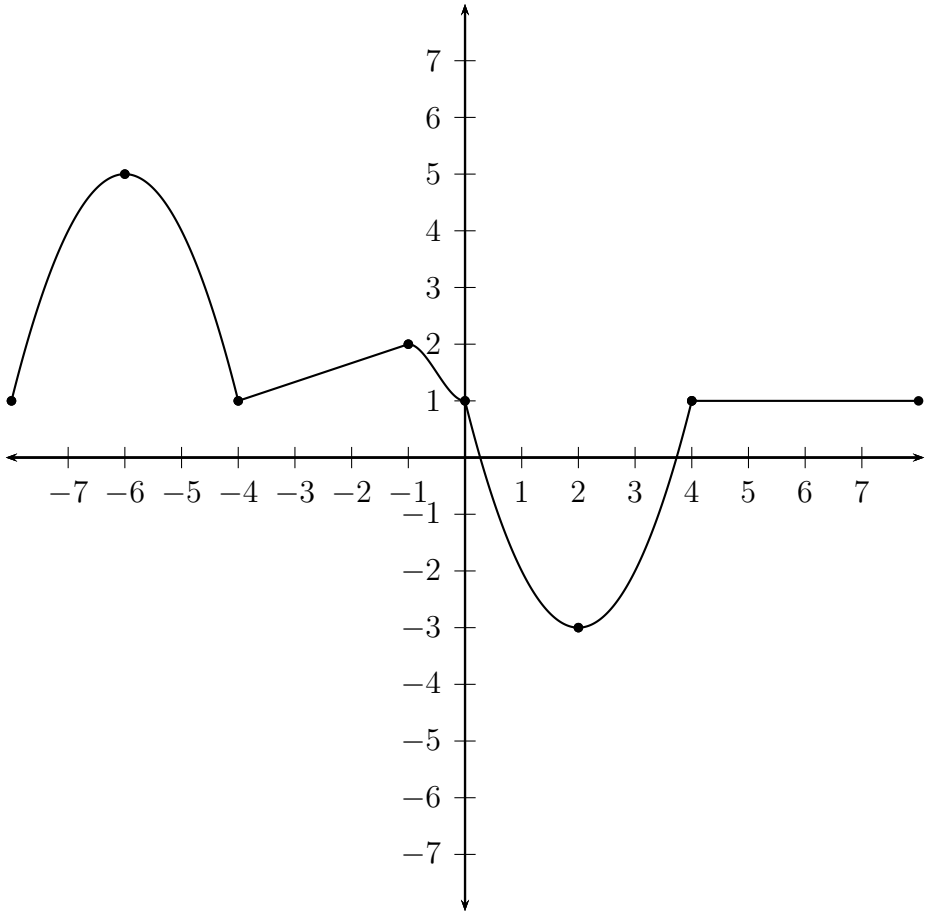


4) Determine if $f(x) = 3x^4 - 12x^2$ is even, odd, or neither.

5) In the graph of the function below, is there a local maximum at $x = -1$? If so, what is the local maximum value at $x = -1$? Is there a local minimum at $x = 0$? If so, what is the local minimum value at $x = 0$?

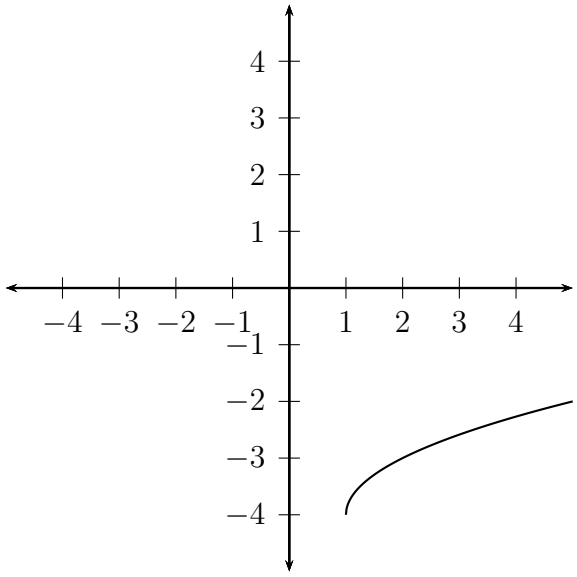


6) Use the graph of the function to answer the following questions.



On what intervals is the function increasing? Decreasing? What is the value of $f(-4)$? Is $f(1)$ positive or negative?

7) Is this a graph of a cubic, quadratic, reciprocal, absolute value, square root, or cubic root function?



8) Write the standard form of the equation of the circle centered at $(2, -1)$ with radius of $\sqrt{5}$.

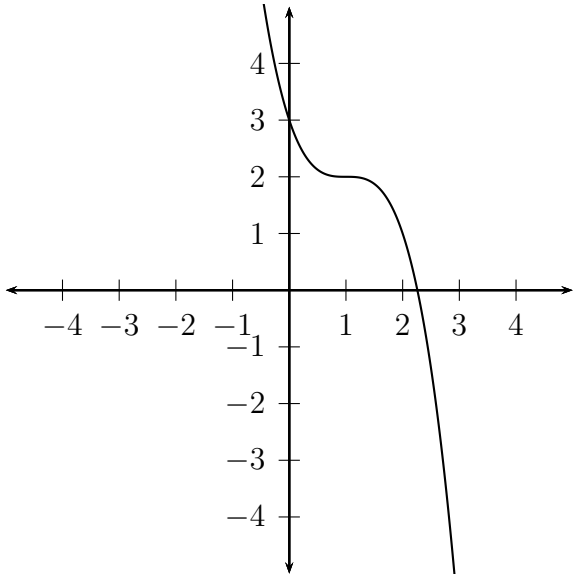
9) Find the domain of $f(x) = \sqrt{4x - 24}$.

10) Find the midpoint of the line segment whose endpoints are given by $(\frac{1}{2}, \frac{3}{2})$ and $(-\frac{1}{2}, -\frac{8}{2})$.

11) Graph $f(x) = -2\sqrt{x-1} + 2$ using standard techniques.

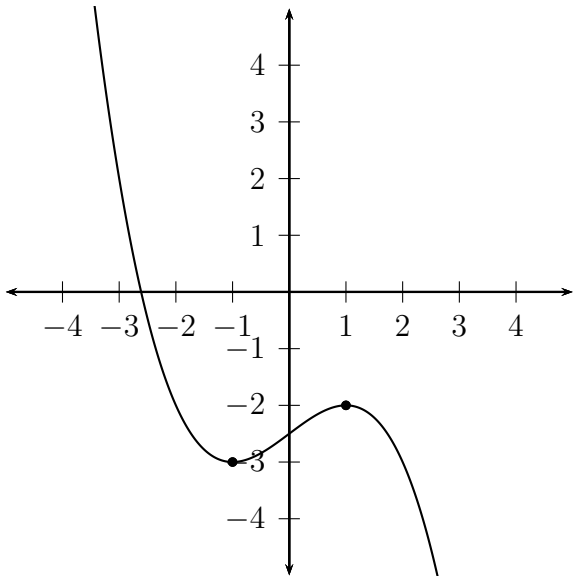
12) Find the distance between points $(1, -15)$ and $(4, -8)$.

13) Write the equation of the function whose graph is given.



14) Write the standard form of the equation of the circle centered at the origin and passing through the point $(1, -5)$.

15) Give the intervals on which the function is increasing.

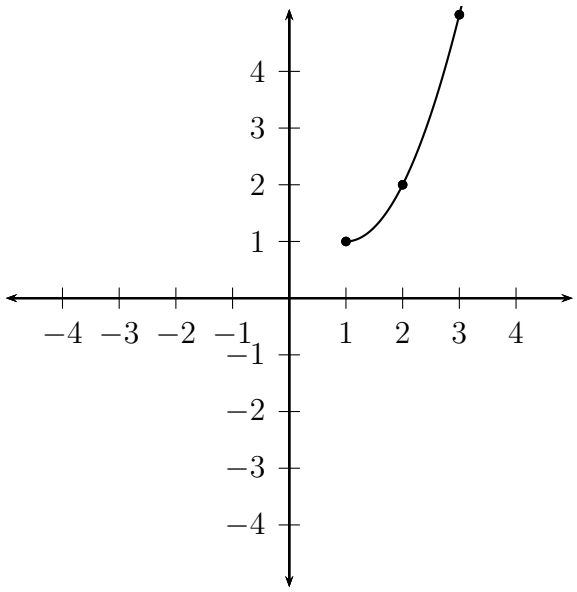


16) List the intercepts and test for symmetry in the graph of $y^4 = x + 16$.

17) Is the function $f(x) = \dfrac{3x^3 - x}{x^2 - 2x^4 + 10}$ even, odd, or neither?

18) Find the lengths of the sides of the triagle whose vertices are at the points $(2, -1)$, $(5, -1)$, and $(2, 2)$. Is it isosceles, right, both, or neither?

19) Complete the graph so that it is origin symmetric. Repeat this process or x-axis symmetric and y-axis symmetric.



20) Give the equation of the function whose graph is given below.