

Write all responses on separate paper. Remember to organize your work clearly. You may *not* use your books, notes, or any calculator on this exam.

1. (24 points) Evaluate each function at the given values. Simplify, but don't approximate.

(a) For $Q(t) = \sqrt{1 + 4(t - 1)^2}$, Evaluate $Q(0)$ and $Q(1)$.

(b) For $R(x) = \sqrt[3]{3(x - 3)(x + 3)}$, Evaluate $R(3)$ and $R(6)$.

(c) For $A(y) = |y^2 - y - 2|$, Evaluate $A(0)$ and $A(2)$.

(d) For $F(a) = \frac{a - 4}{2a + 4}$, Evaluate $F(-2.1)$ and $Q(-1.9)$.

2. (25 points) Use the graph of $y = f(x)$ shown at right to answer the questions. In each, approximate to the nearest tenth.

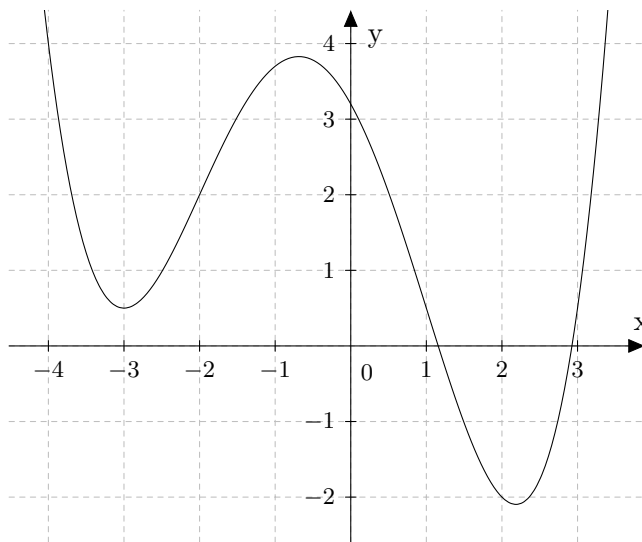
(a) Find $f(-2)$ and $f(2)$

(b) For what value(s) of x is $f(x) = 2$?

(c) Find the x and y -intercepts of the graph.

(d) What is the minimum value of $f(x)$? For what value(s) of x does f take on this minimum value?

(e) Over what interval(s) is $f(x) < 2$? Write the intervals using interval notation.



3. (24 points) For each function, create a table of values showing at least 4 points (find significant points for the graph) and use these to construct a careful graph of the function. Remember to scale and label the axes.

(a) $g(t) = 5 - \frac{3}{5}t$

(b) $L(T) = \sqrt{4 - T}$

(c) $p(n) = 6 - \frac{1}{2}n^2$

(d) $A(x) = |2x - 5|$

4. (27 points) In each table, y varies directly or inversely with a power of x . Find the power of x and the constant of variation, k . Then write a formula for the function of the form $y = kx^n$ or $y = \frac{k}{x^n}$.

(a)

x	4	8	16
y	1.25	2.5	5

(b)

x	2	5	8
y	8	50	128

(c)

x	2	5	10
y	125	8	1