

MATH 110 Review Problem Set 1.1

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The following problems based on Section 1.1 of the textbook will help you review. *You do not need to hand in solutions to these problems.*

1. (Based on 1.1.25) If $f(x) = 3x^2 - x + 2$, find $f(2)$, $f(-2)$, $f(a)$, $f(-a)$, $f(a+1)$, $2f(a)$, $f(2a)$, $f(a^2)$, $(f(a))^2$, and $f(a+h)$.
2. (Based on 1.1.29) Evaluate the difference quotient

$$\frac{f(x) - f(a)}{x - a}$$

for the function $f(x) = 1/x$.

3. (Based on 1.1.43) Sketch the graph of the function

$$f(x) = \begin{cases} x+2 & \text{if } x \leq -1 \\ x^2 & \text{if } x > -1 \end{cases}$$

You may find the following additional exercises from Section 1.1 helpful.

- 1.1 C-level: 1–4, 7–10, 25–30, 31–37, 38–40;
B-level: 5–6, 11–24, 41–44, 45–50, 51–56, 57–61, 62–66;
A-level: 67–80