MA161 Quiz 1

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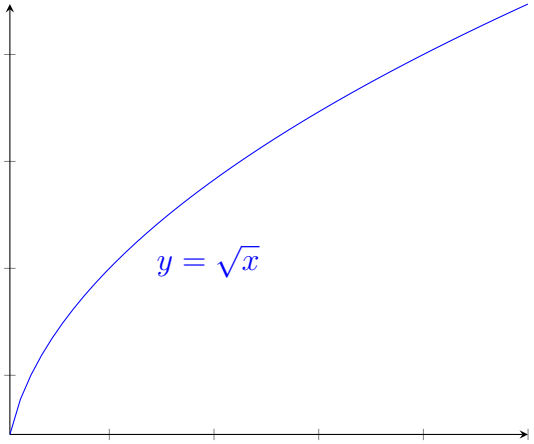
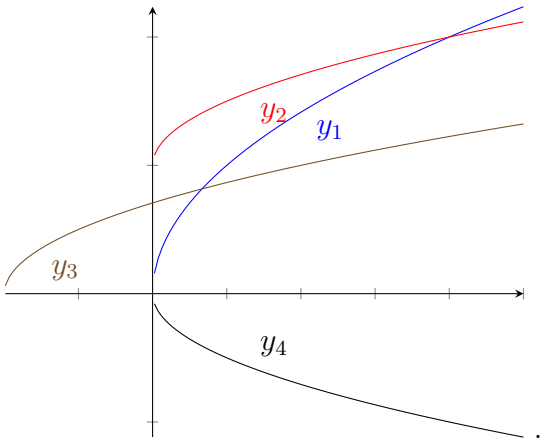
Problem 1.1. Given that the graph of $y = \sqrt{x}$ is sketched below,



match the functions (a) $y = \sqrt{x} + 2$, (b) $y = \sqrt{x+2}$, (c) $y = -\sqrt{x}$, and (d) $y = 2\sqrt{x}$ to their corresponding graph below



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(Write your answers, for example, in the form (a)-y_1.)

Problem 1.2. Given that $f(x) = a^x$, show that

$$\frac{f(x+h) - f(x)}{h} = a^x \cdot \frac{a^h - 1}{h}.$$

Problem 1.3. Which of the following statements are true:

(a) $\sin x$ can be greater than 1.

(b) $\tan x$ is always less than 1.

(c) e^x is always positive.

(d) $\log x$ is negative for $x < 1$.