

1. Answer the questions about the functions graphed below.

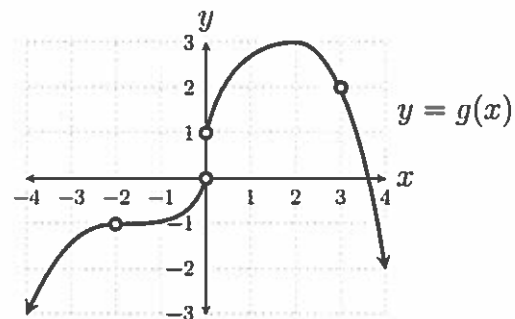
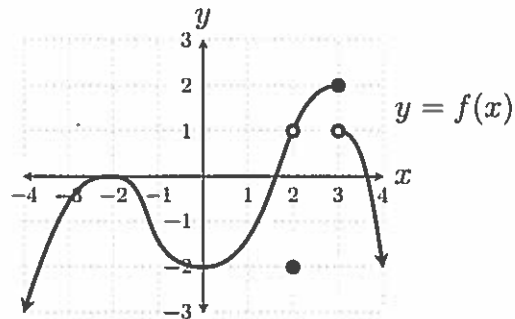
(a) $\lim_{x \rightarrow 3} f(x) = \boxed{\text{DNE}}$

(b) $\lim_{x \rightarrow 2} (2f(x) - g(x)) = 2 \cdot 1 - 3 = \boxed{-1}$

(c) $\lim_{x \rightarrow 3} g(x) = \boxed{2}$

(d) $\lim_{x \rightarrow 3^+} f(x) = \boxed{1}$

(e) $\lim_{x \rightarrow -2} \frac{3 + g(x)}{(1 + f(x))^2} = \frac{3 + (-1)}{(1 + 0)^2} = \boxed{2}$



2. $\lim_{x \rightarrow 2} \sqrt{6x - x^2 + 1} = \sqrt{\lim_{x \rightarrow 2} (6x - x^2 + 1)} = \sqrt{6 \cdot 2 - 2^2 + 1} = \sqrt{9} = \boxed{3}$

3. $\lim_{x \rightarrow 3} \frac{1}{\sqrt{3} + \sqrt{x}} = \frac{1}{\sqrt{3} + \sqrt{3}} = \boxed{\frac{1}{2\sqrt{3}}}$

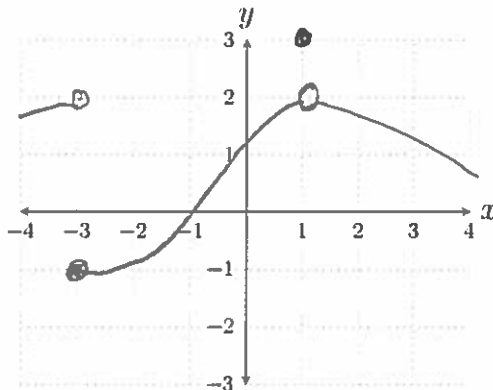
4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

(a) $\lim_{x \rightarrow -3^-} f(x) = 2$

(b) $\lim_{x \rightarrow -3^+} f(x) = -1$

(c) $\lim_{x \rightarrow 1} f(x) = 2$

(d) $f(1) = 3$



1. Answer the questions about the functions graphed below.

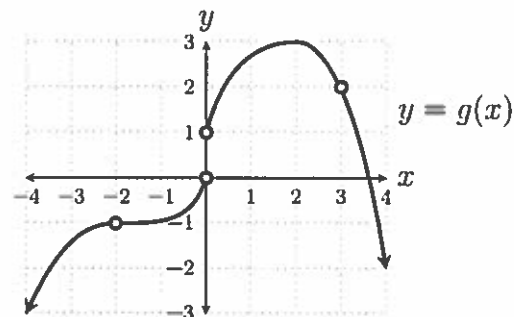
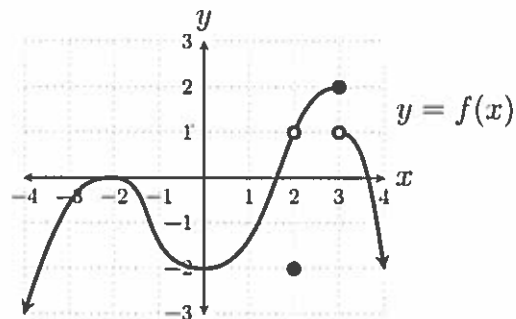
(a) $\lim_{x \rightarrow 0} f(x) = \boxed{-2}$

(b) $\lim_{x \rightarrow 2} g(x) = \boxed{3}$

(c) $\lim_{x \rightarrow 2} (2f(x) + g(x)) = 2 \cdot 1 + 3 = \boxed{5}$

(d) $\lim_{x \rightarrow 0^+} g(x) = \boxed{1}$

(e) $\lim_{x \rightarrow -2} \frac{3 + g(x)}{\sqrt{1 + f(x)}} = \frac{3 + (-1)}{\sqrt{1 + 0}} = \boxed{2}$



2. $\lim_{x \rightarrow 3} (6x - x^2 + 1)^2 = \left(\lim_{x \rightarrow 3} (6x - x^2 + 1) \right)^2 = (6 \cdot 3 - 3^2 + 1)^2 = 10^2 = \boxed{100}$

3. $\lim_{x \rightarrow 2} \frac{1}{\sqrt{2} + \sqrt{x}} = \frac{1}{\sqrt{2} + \sqrt{2}} = \boxed{\frac{1}{2\sqrt{2}}}$

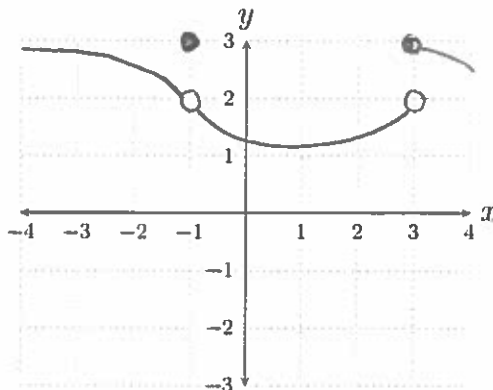
4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

(a) $\lim_{x \rightarrow 3^-} f(x) = 2$

(b) $\lim_{x \rightarrow 3^+} f(x) = 3$

(c) $\lim_{x \rightarrow -1} f(x) = 2$

(d) $f(-1) = 3$



1. Answer the questions about the functions graphed below.

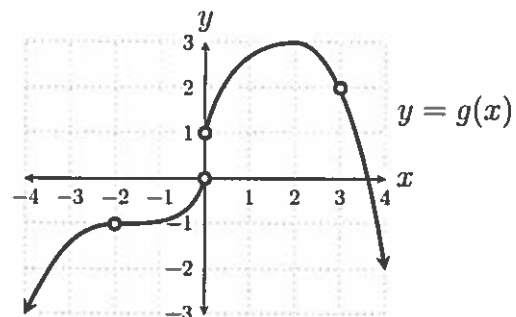
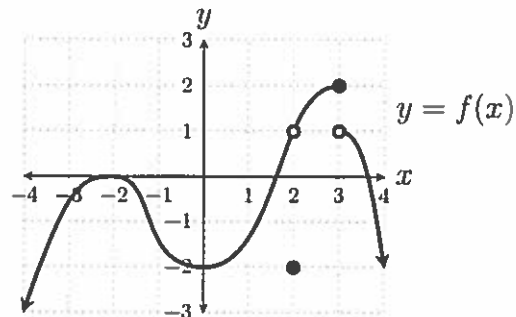
(a) $\lim_{x \rightarrow -2} f(x) = \boxed{0}$

(b) $\lim_{x \rightarrow -2} g(x) = \boxed{-1}$

(c) $\lim_{x \rightarrow -2} (f(x) - 7g(x)) = 0 - 7(-1) = \boxed{7}$

(d) $\lim_{x \rightarrow 0^-} g(x) = \boxed{0}$

(e) $\lim_{x \rightarrow 2} \frac{3 + g(x)}{(1 + f(x))^2} = \frac{3 + 3}{(1 + 1)^2} = \frac{6}{4} = \boxed{\frac{3}{2}}$



2. $\lim_{x \rightarrow 3} \sqrt{6x - x^2 + 1} = \sqrt{\lim_{x \rightarrow 3} (6x - x^2 + 1)} = \sqrt{6 \cdot 3 - 3^2 + 1} = \boxed{\sqrt{10}}$

3. $\lim_{x \rightarrow 3} \frac{1}{5 + \sqrt{x+1}} = \frac{1}{5 + \sqrt{3+1}} = \frac{1}{5 + \sqrt{4}} = \boxed{\frac{1}{7}}$

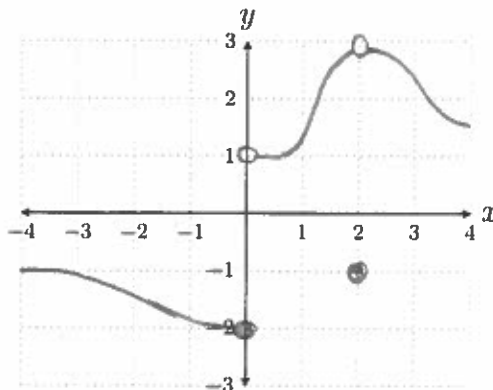
4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

(a) $\lim_{x \rightarrow 0^-} f(x) = -2$

(b) $\lim_{x \rightarrow 0^+} f(x) = 1$

(c) $\lim_{x \rightarrow 2} f(x) = 3$

(d) $f(2) = -1$



1. Answer the questions about the functions graphed below.

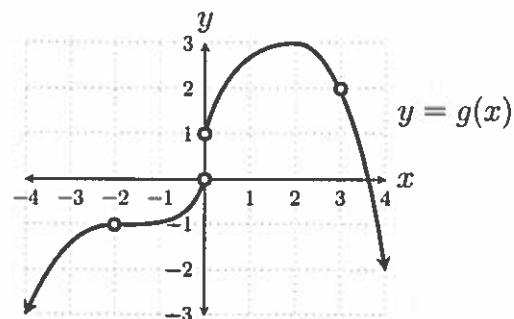
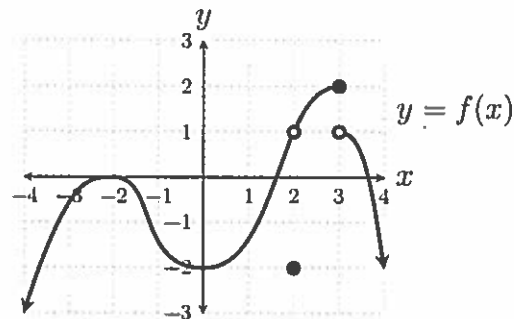
$$(a) \lim_{x \rightarrow 2} g(x) = \boxed{3}$$

$$(b) \lim_{x \rightarrow -2} g(x) = \boxed{-1}$$

$$(c) \lim_{x \rightarrow 2} (2f(x) - g(x)) = 2 \cdot 1 - 3 = \boxed{-1}$$

$$(d) \lim_{x \rightarrow 3^+} f(x) = \boxed{1}$$

$$(e) \lim_{x \rightarrow -2} \frac{3 + f(x)}{(6 + g(x))^2} = \frac{3 + 0}{(6 + (-1))^2} = \boxed{\frac{3}{25}}$$



$$2. \lim_{x \rightarrow -1} \sqrt{6x - x^2 + 11} = \sqrt{\lim_{x \rightarrow -1} (6x - x^2 + 11)} = \sqrt{6(-1) - (-1)^2 + 11} = \sqrt{4} = \boxed{2}$$

$$3. \lim_{x \rightarrow 5} \frac{3}{5 + \sqrt{x-1}} = \frac{3}{5 + \sqrt{5-1}} = \frac{3}{5 + \sqrt{4}} = \boxed{\frac{3}{7}}$$

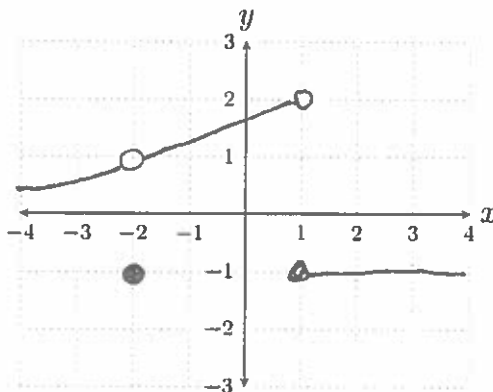
4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

$$(a) \lim_{x \rightarrow 1^-} f(x) = 2$$

$$(b) \lim_{x \rightarrow 1^+} f(x) = -1$$

$$(c) \lim_{x \rightarrow -2} f(x) = 1$$

$$(d) f(-2) = -1$$



1. Answer the questions about the functions graphed below.

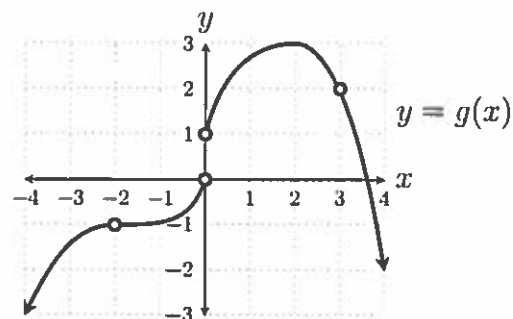
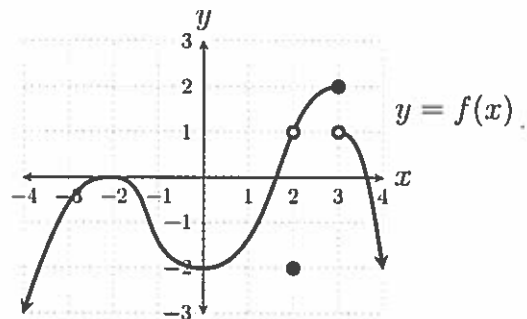
(a) $\lim_{x \rightarrow 3} g(x) = \boxed{2}$

(b) $\lim_{x \rightarrow 3} f(x) = \boxed{\text{DNE}}$

(c) $\lim_{x \rightarrow 2} (f(x) + 2g(x)) = 1 + 2 \cdot 3 = \boxed{7}$

(d) $\lim_{x \rightarrow 3^-} f(x) = \boxed{2}$

(e) $\lim_{x \rightarrow 2} \frac{3 + f(x)}{\sqrt{1 + g(x)}} = \frac{3 + 1}{\sqrt{1 + 3}} = \frac{4}{\sqrt{4}} = \boxed{2}$



2. $\lim_{x \rightarrow 1} (6x - x^2 + 1)^2 = \left(\lim_{x \rightarrow 1} (6x - x^2 + 1) \right)^2 = (6 \cdot 1 - 1^2 + 1)^2 = \boxed{36}$

3. $\lim_{x \rightarrow 3} \frac{\sqrt{x}}{\sqrt{3} + \sqrt{x}} = \frac{\sqrt{3}}{\sqrt{3} + \sqrt{3}} = \frac{\sqrt{3}}{2\sqrt{3}} = \boxed{\frac{1}{2}}$

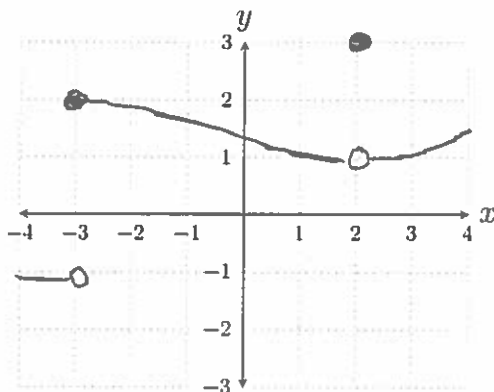
4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

(a) $\lim_{x \rightarrow -3^+} f(x) = 2$

(b) $\lim_{x \rightarrow -3^-} f(x) = -1$

(c) $\lim_{x \rightarrow 2} f(x) = 1$

(d) $f(2) = 3$



1. Answer the questions about the functions graphed below.

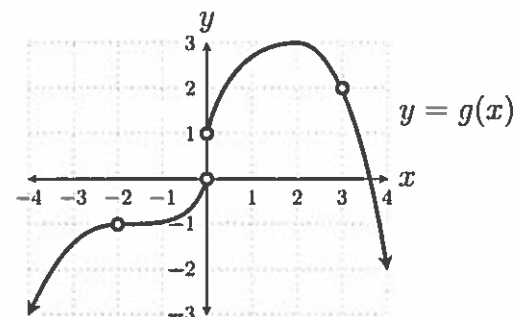
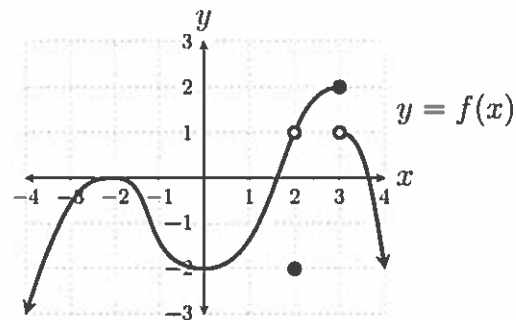
(a) $\lim_{x \rightarrow 3^+} f(x) = \boxed{1}$

(b) $\lim_{x \rightarrow 3^-} f(x) = \boxed{2}$

(c) $\lim_{x \rightarrow -2} g(x) = \boxed{-1}$

(d) $\lim_{x \rightarrow -2} (f(x) - 3g(x)) = 0 - 3(-1) = \boxed{3}$

(e) $\lim_{x \rightarrow -2} \frac{\sqrt{3+g(x)}}{1+f(x)} = \frac{\sqrt{3+(-1)}}{1+0} = \boxed{\sqrt{2}}$



$$2. \lim_{x \rightarrow 2} (4x - x^2 - 2)^3 = \left(\lim_{x \rightarrow 2} (4x - x^2 - 2) \right)^3 = (4 \cdot 2 - 2^2 - 2)^3 = 2^3 = \boxed{8}$$

$$3. \lim_{x \rightarrow 1} \frac{2\sqrt{x+1}}{\sqrt{2} + \sqrt{x+1}} = \frac{2\sqrt{1+1}}{\sqrt{2} + \sqrt{1+1}} = \frac{2\sqrt{2}}{\sqrt{2} + \sqrt{2}} = \frac{2\sqrt{2}}{2\sqrt{2}} = \boxed{1}$$

4. Draw the graph of one function f , with domain $(-4, 4)$, meeting all of the following conditions.

(a) $\lim_{x \rightarrow 3^+} f(x) = 2$

(b) $\lim_{x \rightarrow 3^-} f(x) = -1$

(c) $\lim_{x \rightarrow -1} f(x) = 2$

(d) $f(-1) = 3$

