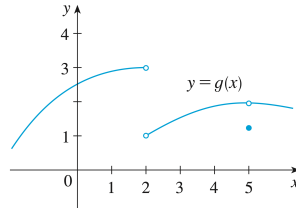


Complete as many of the following problems as you can with your table in the allotted time. You do not have to go in order.

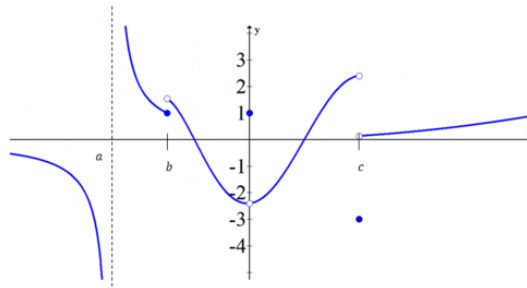
Classwork 3

1. Using the graph of $g(x)$ below find the following. Approximate as needed.



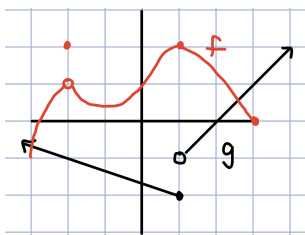
- | | | |
|-------------------------------------|-------------------------------------|--|
| (a) $\lim_{x \rightarrow 2^-} g(x)$ | (d) $f(2)$ | (g) $\lim_{x \rightarrow 5} g(x)$ |
| (b) $\lim_{x \rightarrow 2^+} g(x)$ | (e) $\lim_{x \rightarrow 5^-} g(x)$ | (h) $g(5)$ |
| (c) $\lim_{x \rightarrow 2} g(x)$ | (f) $\lim_{x \rightarrow 5^+} g(x)$ | (i) $\lim_{x \rightarrow 5} \sqrt{g(x) + 7}$ |

2. Using the graph of $f(x)$ below find the following. Approximate as needed.



- | | | |
|---|-------------------------------------|-------------------------------------|
| (a) $\lim_{x \rightarrow -\infty} f(x)$ | (c) $\lim_{x \rightarrow a^-} f(x)$ | (e) $\lim_{x \rightarrow a} f(x)$ |
| (b) $\lim_{x \rightarrow 0} f(x)$ | (d) $\lim_{x \rightarrow a^+} f(x)$ | (f) $\lim_{x \rightarrow b^-} f(x)$ |

3. Use the graph below (assuming all tick marks are 1 unit) to answer the following.



- | |
|--|
| (a) $\lim_{x \rightarrow -2} (f(x) + 5g(x))$ |
| (b) $\lim_{x \rightarrow 3} \frac{f(x)}{g(x)}$ |

Key:

- | | | | |
|---------------|--------------------|--------------------|-------------|
| 1. (a) 3 | (e) 2 | 2. (a) 0 | (e) DNE |
| (b) 1 | (f) 2 | (b) ≈ -2.4 | (f) 1 |
| (c) DNE | (g) 2 | (c) $-\infty$ | 3. (a) -4 |
| (d) Undefined | (h) ≈ 1.25 | (d) ∞ | (b) 0 |
| | (i) 3 | | |

Classwork 4

1. Evaluate $\lim_{x \rightarrow 5} (2x^2 - 3x + 4)$

2. Evaluate $\lim_{x \rightarrow -2} \frac{x^3 + 2x^2 - 1}{5 - 3x}$

3. Evaluate $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$

4. Evaluate $\lim_{x \rightarrow 4} \frac{\sqrt{x} - 2}{x - 4}$

5. Evaluate $\lim_{h \rightarrow 0} \frac{(3 + h)^2 - 9}{h}$

6. If $f(x) = \begin{cases} x - 1 & \text{if } x < 1 \\ 0 & \text{if } 1 \leq x \leq 4 \\ x - 2 & \text{if } x > 4 \end{cases}$

Find $\lim_{x \rightarrow 1} f(x)$ and $\lim_{x \rightarrow 4} f(x)$

7. If $g(x) = \begin{cases} x + 1 & \text{if } x \neq 1 \\ \pi & \text{if } x = 1 \end{cases}$

Find $\lim_{x \rightarrow 1} g(x)$

8. If $2x \leq g(x) \leq x^4 - x^2 + 2$, evaluate $\lim_{x \rightarrow 1} g(x)$

Key:

- | | | |
|--------------------|------------------|------|
| 1. 39 | 4. $\frac{1}{4}$ | 7. 2 |
| 2. $\frac{-1}{11}$ | 5. 6 | |
| 3. 2 | 6. 0 and DNE | 8. 2 |