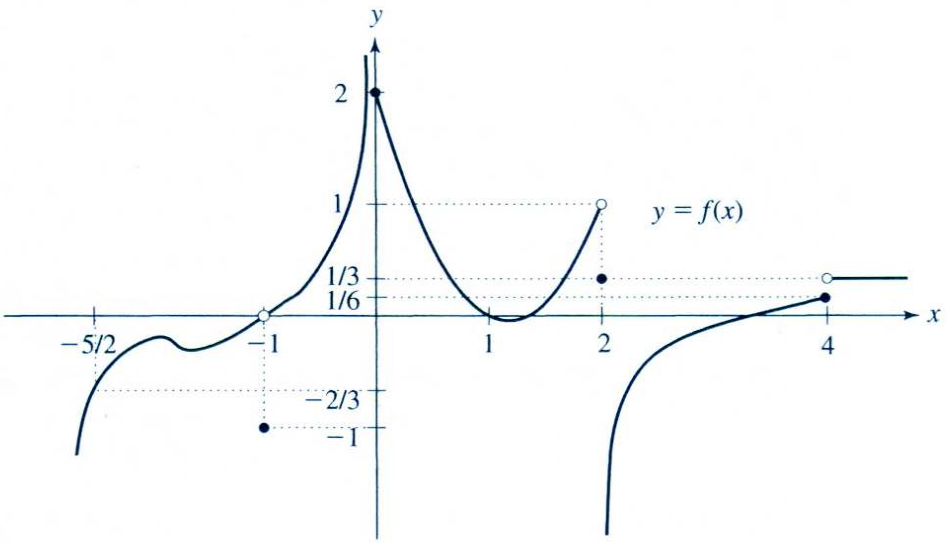
Mathematical Sciences 791

Section 2.2 Learning Activity and Investigation
Limits of Functions
February 27, 2012

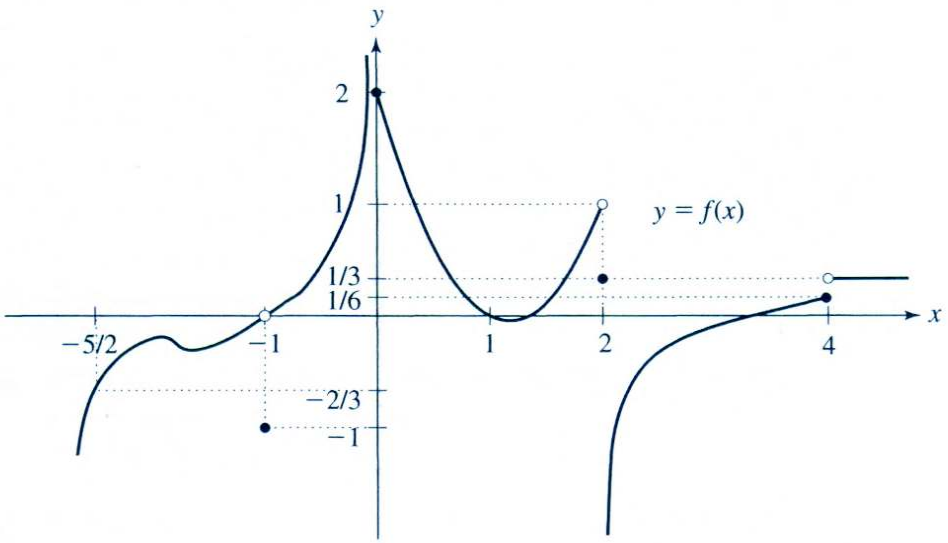
Name: _____

Figure 1: Graph of function for Problems 5-10



5. At $x = -1$,
   (a) $f(-1)$
   (b) $\lim_{x \to -1^-} f(x)$
   (c) $\lim_{x \to -1^+} f(x)$
   (d) $\lim_{x \to -1} f(x)$
6. At $x = 4$,
   (a) $f(-1)$
   (b) $\lim_{x \to 4^-} f(x)$
   (c) $\lim_{x \to 4^+} f(x)$
   (d) $\lim_{x \to 4} f(x)$

Figure 2: Graph of function for Problems 5-10



7. At $x = 0$,
   (a) $f(-1)$
   (b) $\lim_{x \to 0^-} f(x)$
   (c) $\lim_{x \to 0^+} f(x)$
   (d) $\lim_{x \to 0} f(x)$
8. At $x = 2$,
   (a) $f(-1)$
   (b) $\lim_{x \to 2^-} f(x)$
   (c) $\lim_{x \to 2^+} f(x)$
   (d) $\lim_{x \to 2} f(x)$
9. At $x = 1$,
   (a) $f(-1)$
   (b) $\lim_{x \to 1^-} f(x)$
   (c) $\lim_{x \to 1^+} f(x)$
   (d) $\lim_{x \to 1} f(x)$
10. At $x = -\frac{5}{2}$,
    (a) $f(-1)$
    (b) $\lim_{x \to -\frac{5}{2}^-} f(x)$
    (c) $\lim_{x \to -\frac{5}{2}^+} f(x)$
    (d) $\lim_{x \to -\frac{5}{2}} f(x)$

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Section 2.2 B Learning Activity and Investigation
Limits of Functions
February 27, 2012

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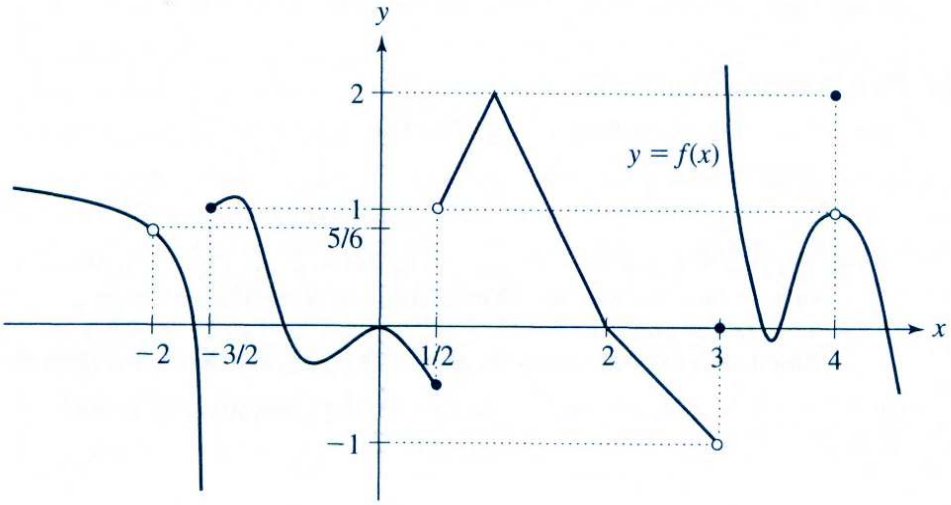
Figure 1: Graph of function for Problems 23-28



23. At $x = -2$,

    (a) $f(-2)$

    (b) $\lim_{x \to -2^-} f(x)$

    (c) $\lim_{x \to -2^+} f(x)$

    (d) $\lim_{x \to -2} f(x)$

24. At $x = \frac{1}{2}$,

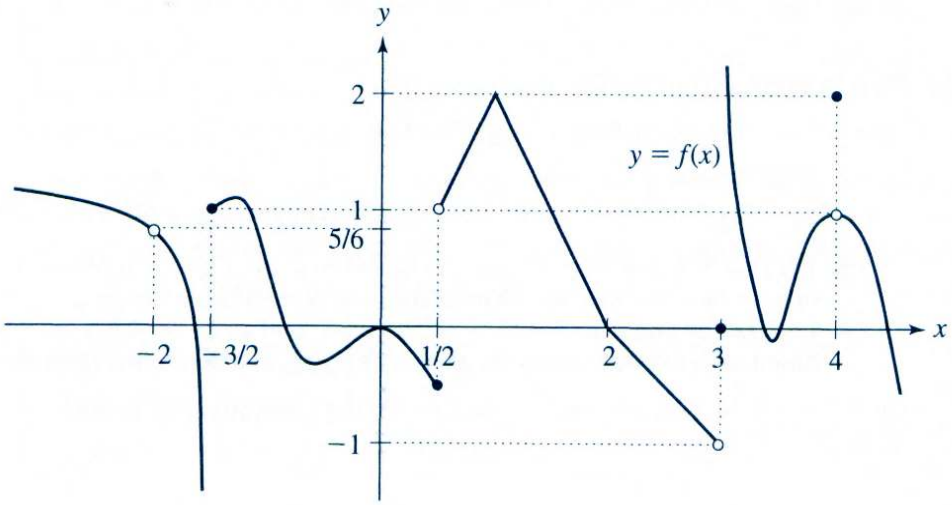
    (a) $f\left(\frac{1}{2}\right)$

    (b) $\lim_{x \to \frac{1}{2}^-} f(x)$

    (c) $\lim_{x \to \frac{1}{2}^+} f(x)$

    (d) $\lim_{x \to \frac{1}{2}} f(x)$

Figure 2: Graph of function for Problems 23-28



25. At $x = -\frac{3}{2}$,
    (a) $f\left(-\frac{3}{2}\right)$
    (b) $\lim_{x \to -\frac{3}{2}^-} f(x)$
    (c) $\lim_{x \to -\frac{3}{2}^+} f(x)$
    (d) $\lim_{x \to -\frac{3}{2}} f(x)$

26. At $x = 3$,
    (a) $f(3)$
    (b) $\lim_{x \to 3^-} f(x)$
    (c) $\lim_{x \to 3^+} f(x)$
    (d) $\lim_{x \to 3} f(x)$

27. At $x = 2$,
    (a) $f(2)$
    (b) $\lim_{x \to 2^-} f(x)$
    (c) $\lim_{x \to 2^+} f(x)$
    (d) $\lim_{x \to 2} f(x)$

28. At $x = 4$,
    (a) $f(4)$
    (b) $\lim_{x \to 4^-} f(x)$
    (c) $\lim_{x \to 4^+} f(x)$
    (d) $\lim_{x \to 4} f(x)$

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Section 2.2 C Learning Activity and Investigation
Limits of Functions
February 28, 2012

Name: _____

In these selected exercises from page 101 and 102 in your text, evaluate the limits using Properties 1-6 from your text pages 95-96.

11. $\lim_{x \to 1} \left(x^3 - 6x^2 - 4\right)$

12. $\lim_{x \to -1} \left(3x^4 + 5x^3 + 2x - 1\right)$

13. $\lim_{x \to 0} \sqrt{2x + 3}$

14. $\lim_{x \to 4} \sqrt{x^2 - 3}$

15. $\lim_{x \to -1} \dfrac{2x + 1}{x - 3}$

16. $\lim_{x \to 0} \dfrac{x - 6}{3x + 1}$

17. $\lim_{x \to 0} \dfrac{-1}{x^2 + x + 1}$