



ANSWERS

CHECK YOUR PROGRESS 20.1

1. (a) 17 (b) 7 (c) 0 (d) 2
(e) -4 (f) 8
2. (a) 0 (b) $\frac{3}{2}$ (c) $-\frac{2}{11}$ (d) $\frac{a}{b}$ (e) 6
(f) -10 (g) 3 (h) 2
3. (a) 3 (b) $\frac{7}{2}$ (c) 4 (d) $\frac{1}{2}$
4. (a) $\frac{1}{2}$ (b) $\frac{1}{2\sqrt{2}}$ (c) $\frac{1}{2\sqrt{6}}$ (d) 2 (e) -1
5. (a) Does not exist (b) Does not exist
6. (a) 0 (b) $\frac{1}{4}$ (c) does not exist
7. (a) 1, -2 (b) 1 (c) 19
8. $a = -2$
10. limit does not exist

CHECK YOUR PROGRESS 20.2

1. (a) 2 (b) $\frac{e^2 - 1}{e^2 + 1}$
2. (a) $-\frac{1}{e}$ (b) $-e$
3. (a) 2 (b) $\frac{1}{5}$ (c) 0 (d) $\frac{a}{b}$
4. (a) $\frac{1}{2}$ (b) 0 (c) 4 (d) $\frac{2}{3}$
5. (a) $\frac{a^2}{b^2}$ (b) 2 (c) $\frac{1}{2}$
6. (a) 1 (b) $\frac{\pi}{2}$ (c) 0
7. (a) $\frac{5}{3}$ (b) $\frac{7}{4}$ (c) -5

CHECK YOUR PROGRESS 20.3

1. (a) Continuous (b) Continuous
(c) Continuous (d) Continuous
5. (a) $p = 3$ (b) $a = 4$ (c) $b = \frac{14}{9}$

CHECK YOUR PROGRESS 20.4

2. (a) Continuous
(b) Discontinuous at $x = 2$
(c) Discontinuous at $x = -3$
(d) Discontinuous at $x = 4$

CHECK YOUR PROGRESS 20.5

1. (b) Continuous (c) Discontinuous
(d) Discontinuous (e) $k = \frac{3}{4}$
2. (a) Continuous (c) Continuous
(d) Discontinuous (e) Discontinuous
3. (a) Discontinuous (b) Continuous (c) $\frac{5}{3}$
4. (b) Continuous (c) $k = 2$
(d) Discontinuous
5. (a) Discontinuous (b) Discontinuous
6. (a) Continuous (b) Discontinuous
(c) Discontinuous (d) Continuous
7. (a) All real number except 1 and 4
(b) All real numbers except -2 and 3
(c) All real number except -6 and 1
(d) All real numbers except 4

TERMINAL EXERCISE

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|-----------|---------------|-------------------|--------------------|
| 1. 5 | 2. $\sqrt{2}$ | 3. 4 | 4. $-\frac{1}{3}$ |
| 5. $2x^2$ | 6. 1 | 7. $-\frac{1}{2}$ | 8. $-\frac{1}{10}$ |

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9. -8 10. $\frac{1}{2}$ 11. 1 12. $\frac{a-1}{2a}$
13. $1, -2$ 14. $-2, 2$ 15. -1 16. 1
17. -1 19. $k = 8$ 20. $\frac{7}{2}$ 21. 1
22. $\frac{9}{2}$ 23. 1 24. $\frac{2}{\pi}$ 25. $\frac{5}{8}$
26. Discontinuous 27. Discontinuous
28. $k = 8$
29. (a) No (b) $x = 1$
(c) $x = 1, x = 2$ (d) $x = 2$
31. 10