

CHAPTER 3 **Cumulative Test**
continued

12. The points $\{(-6, -11), (0, 10), (5, 13.75)\}$ are on the graph of function f . What are the coordinates of these three points after a vertical stretch by a factor of 4?
F $\{(-6, -86), (0, -2), (5, 13)\}$
G $\{(-6, -44), (0, 40), (5, 55)\}$
H $\{(-24, -86), (0, -2), (20, 13)\}$
J $\{(-6, -90), (0, -6), (5, 9)\}$

13. Which parent function best approximates this data set?

x	-2	-1	0	2	4
y	-10	$-1\frac{1}{4}$	0	10	80

- A** $f(x) = x^2$ **C** $f(x) = x$
B $f(x) = x^3$ **D** $f(x) = c$

14. Data gathered about the growth of a population in thousands is represented in the table. Use the function that best approximates the data to predict the population in year 9.

x	0	3	5	8	9
y	10	9.1	7.5	3.6	

- F** about 3.1 **H** about 2
G about 0 **J** about -1.2

15. Find a quadratic function to model the cricket population growth recorded in this table. If the current population growth continues, about how many crickets will there be in 16 weeks?

w	2	4	6	8	10
p	7	13	23	37	55

- A** about 88 **C** about 100
B about 77 **D** about 133

16. Solve $9 - 3x = 1 + 12x - 4 - 6x$.
F $x = \frac{3}{2}$ **H** all real numbers
G $x = \frac{4}{3}$ **J** no solution

17. Solve $7x - 1 < 15x + 2$.

- A** $x > -\frac{3}{8}$ **C** $x < -\frac{1}{22}$
B $x > \frac{3}{22}$ **D** $x < -\frac{3}{8}$

18. Solve $\frac{84}{7} = \frac{48}{x}$.

- F** $x = 4$ **H** $x = \frac{1}{4}$
G $x = 12.25$ **J** $x = 3.5$

19. Over the course of 24 varsity games, a basketball team scored 1,050 baskets. About how many baskets per game did they score?

- A** 0.0229 **C** 55
B 21 **D** 43.75

20. Which set of points could represent a linear function?

- F** $\{(-1, 10), (2, 2), (5, -6), (7, -11)\}$
G $\{(-1, 11), (2, 2), (5, -7), (7, -13)\}$
H $\{(-1, 11), (2, 2), (4, -6), (7, -11)\}$
J $\{(-1, 10), (2, 2), (4, -7), (7, -12)\}$

21. A line has slope $-\frac{3}{8}$ and passes through $(8, 1)$. Which of these points is also on the line?

- A** $(-2, -2.75)$ **C** $(2, 17)$
B $(5, -7)$ **D** $(-4, 5.5)$

22. Which is the equation of the line that contains the points in the table?

x	-4	-2	6
y	-7	-4.5	5.5

- F** $y = \frac{3}{20}x - 6.4$ **H** $y = \frac{5}{4}x - 2$
G $y = 4x + 3.5$ **J** $y = -\frac{5}{4}x + 11$

23. Which is the equation of the line parallel to $y = -\frac{1}{2}x + 10$ and passing through $(6, -4)$?

- A** $y = \frac{1}{2}x - 7$ **C** $y = -\frac{1}{2}x - 1$
B $y = -\frac{1}{2}x + 8$ **D** $y = 2x + 16$

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24. If $h(x)$ is a horizontal translation 8 units left of $f(x) = -2x - 5$, what is the rule for $h(x)$?
- F $h(x) = -2x + 1$
 G $h(x) = -2x - 13$
 H $h(x) = -2x + 3$
 J $h(x) = -2x - 21$

25. Which equation best fits this data set?

x	-4	-1	2	3	5
y	18	7.5	-3	-6.5	-13.5

- A $y = -\frac{7}{2}x + 4$ C $y = \frac{7}{2}x + 10$
 B $y = -3x + 3$ D $y = -3x + 1$
26. Solve $-8x \leq 12$ AND $4x + 3 < 6$.
- F $\{x \mid x \leq -1.5\}$ or $\{x \mid x > .75\}$
 G $\{x \mid -1.5 \leq x < .75\}$
 H $\{x \mid -0.75 \leq x < 1.5\}$
 J $\{x \mid x \geq .75\}$

27. Solve $\frac{|2x - 5|}{2} > 5.25$.

- A $\left\{x \mid x \leq 7\frac{3}{4}\right\}$
 B $\left\{x \mid x \leq 7\frac{3}{4} \text{ or } x > -2\frac{3}{4}\right\}$
 C $\left\{x \mid x \leq -2\frac{3}{4} \text{ or } x > 7\frac{3}{4}\right\}$
 D $\left\{x \mid 7\frac{3}{4} \leq x \leq -2\frac{3}{4}\right\}$

28. Which function has a vertex at $(-7, -3)$?
- F $f(x) = |x + 3| - 7$
 G $f(x) = |x - 7| - 3$
 H $f(x) = |x + 7| - 3$
 J $f(x) = |x - 7| + 3$

29. The system $\begin{cases} \frac{5}{3}x = 2y + 4 \\ 3y + 6 = \frac{5}{2}x \end{cases}$ is

- A inconsistent, with no solution.
 B consistent, with infinitely many solutions.
 C consistent, with no solutions.
 D inconsistent, with infinitely many solutions.

30. The Adrenaline Zone Amusement Park charges a \$40 entrance fee, plus a charge of \$0.75 per ride ticket. The Thrill Time Amusement Park charges a \$55 entrance fee, plus \$0.50 per ride ticket. For what number of tickets is the total cost of the entrance fee and ride tickets the same for both parks?

- F 4 tickets H 95 tickets
 G 15 tickets J 60 tickets

31. If $g(x)$ is a horizontal compression by a factor of 0.4 of $f(x) = |x - 2|$, what is the rule for $g(x)$?

- A $g(x) = |0.4x - 2|$
 B $g(x) = |0.4x - 0.8|$
 C $g(x) = |2.5x - 5|$
 D $g(x) = |2.5x - 2|$

32. If $g(x)$ is a vertical translation 9 units down of the absolute-value parent function, which is the rule for $g(x)$?

- F $g(x) = |x - 9|$
 G $g(x) = |x + 9|$
 H $g(x) = |x| - 9$
 J $g(x) = |x| + 9$

33. Solve $\begin{cases} x = 8 - 2y \\ 8y + 3 = 6x \end{cases}$

- A $(2.5, -0.25)$ C $(-1, 0.5)$
 B $(2, -4)$ D $(3.5, 2.25)$

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34. Solve $\begin{cases} 5x + 2y = 28 \\ 3x - 4y = 48 \end{cases}$.
F (4, -48) **H** $(\frac{76}{13}, -\frac{8}{13})$
G (9.5, -38) **J** (8, -6)
35. What is the solution region of $\begin{cases} 7x + 2y > -16 \\ y - 3 \leq -\frac{7}{2}x \end{cases}$?
A $y \leq -2x - 4$ or $y > -2x + 1.5$
B $y \leq -\frac{7}{2}x - 8$ or $y > -\frac{7}{2}x + 3$
C $-\frac{7}{2}x - 8 < y \leq -\frac{7}{2}x + 3$
D $-2x - 4 < y \leq -2x + 1.5$
36. Classify the figure created by the solution region of the system of inequalities $\begin{cases} y \geq 2x - 3 \\ y \geq \frac{3}{4}x + 2 \\ y \leq \frac{1}{4}x + 4 \\ y \geq -\frac{1}{2}x + 2 \end{cases}$.
F triangle **H** parallelogram
G rectangle **J** square
37. Name the vertices of the feasible region for the constraints $\begin{cases} x \geq 1 \\ y \geq 2 \\ 2x + 3y \leq 32 \\ x + 3y \leq 22 \end{cases}$.
A {(0, 1), (0, 2), (2, 3), (1, 3)}
B {(1, 2), (1, 7), (10, 4), (13, 2)}
C {(0, 0), (1, 2), (10, 4), (10, 1)}
D {(1, 2), (1, 7), (10, 4)}
38. On a feasible region whose vertices are {(1, 3), (1, 8), (5, 6), (10, 3)}, what is the maximum of the objective function $R = 2x + 5y$, and where does it occur?
F 40 at (5, 6) **H** 42 at (1, 8)
G 35 at (10, 3) **J** 56 at (10, 3)
39. Which point is the z-intercept of the plane $-2x + 9y - 7z = 63$?
A (12, -10, -9) **C** (0, 0, 9)
B (-9, 0, 0) **D** (0, 0, -9)
40. Solve $\frac{3}{2}x - \frac{5}{3}y + \frac{1}{6}z = 0$ for y when $x = 4$ and $z = 3$.
F $y = \frac{7}{5}$ **H** $y = -6$
G $y = 3.9$ **J** $y = 2$
41. Use elimination to solve $\begin{cases} 5x - 9y + z = -5 \\ -7x + 3y + 2z = 2 \\ 4x - y = 9 \end{cases}$.
A (3, 3, 7) **C** (3, 3, -7)
B $(3, -\frac{6}{7}, 2)$ **D** $(-\frac{2}{3}, \frac{7}{3}, -\frac{1}{4})$
42. Solve $\begin{cases} 3x + 4y - 2z = -19 \\ -2x - 3y + z = 10 \\ 6x + 5y - 3z = -38 \end{cases}$.
F (-21, 0, -22)
G (-19, 10, -38)
H (-5, 2, 6)
J $(\frac{334}{6}, 17, 127)$

Answer Key continued

19. inconsistent with no solutions

20. $x = 0, y = -2, z = 3$

Chapter Test Form C

1. not a solution
2. $(-4, -3)$
3. dependent with infinitely many solutions
4. \$55
5. $(-17, 2)$
6. $(9, -15)$
7. inconsistent with no solutions
8. 102 ounces
9. lines intersect at $(-3, -4)$, "southwest" region should be shaded
10. $4x + 1 < y \leq 4x + 5$
11. 25 square units
12. $(6, 4), (14, 0), (16, 11), (12, 23), (6, 14)$
13. 82 at $(12, 23)$
14. 0 model planes
15. the xz -plane
16. x -intercept: $x = 20$; y -intercept: $y = -15$;
 z -intercept: $x = 12$
17. $q = 4$
18. $(\frac{11}{3}, -\frac{4}{3}, \frac{29}{3})$
19. consistent, one solution
20. $x = -5, y = -7, z = 0$

Performance Assessment

1.
$$\begin{cases} w \geq 4 \\ w \leq 10 \\ h \geq 6 \\ h \leq 14 \\ h + w \leq 20 \end{cases}$$
2. $T = .03h + .02w$
3. $(6, 4), (6, 10), (10, 10), (14, 4), (14, 6)$
(or reversed)
4. She should work for 6 hours and do 14 hours of homework.

Cumulative Test

1. C
2. G
3. A
4. H
5. B
6. J
7. C
8. F
9. A
10. G
11. D
12. G
13. B
- ~~14. G~~
- ~~15. D~~
16. G
17. A
18. F
19. D
20. G
21. D
22. H
23. C
- ~~24. J~~
25. A
- ~~26. G~~
- ~~27. C~~
- ~~28. H~~
29. B
30. J
- ~~31. D~~
- ~~32. H~~

Answer Key continued

- 33. D
- 34. J
- 35. C
- 36. F
- 37. B
- 38. H
- 39. D
- 40. G
- 41. A
- 42. H

CHAPTER 4

Section Quiz: Section A

- 1. A
- 2. J
- 3. A
- 4. J
- 5. B
- 6. H
- 7. B
- 8. H

Section Quiz: Section B

- 1. C
- 2. G
- 3. C
- 4. G
- 5. D
- 6. G
- 7. B
- 8. F

Chapter Test Form A

- 1. A
- 2. B

- 3. D
- 4. A
- 5. D
- 6. B
- 7. A
- 8. B
- 9. C
- 10. A
- 11. D
- 12. A
- 13. B
- 14. B
- 15. D
- 16. B

Chapter Test Form B

- 1. A
- 2. H
- 3. A
- 4. G
- 5. D
- 6. G
- 7. A
- 8. G
- 9. D
- 10. F
- 11. D
- 12. H
- 13. A
- 14. F
- 15. B
- 16. G