

Algebra 2 Summer Assignment

Cumulative Test (separate PDF) #1-23, 25-37

All work is to be done on a separate paper stapled behind the test.

The test and work is to be brought on **the first day of school** to your math teacher.

Cumulative Test

Select the best answer.

1. Larry is 5 feet tall. His brother Mason is t feet taller than he is. Which expression shows how tall Mason?

A $5 - t$ C $t - 5$
 B $5 + t$ D $5 \cdot t$

2. Subtract $8.4 - (-4.2)$.

F -12.6 H 4.2
 G -4.2 J 12.6

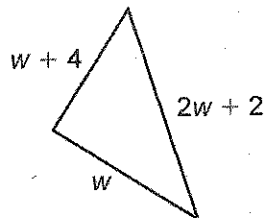
3. A tree house has a square floor with a total area of 50 ft^2 . To the nearest tenth of a foot, what is the length of one side of the floor?

A 6.9 feet C 7.1 feet
 B 7.0 feet D 7.2 feet

4. Simplify $-4^2 + 12 \div 4$.

F -13 H 7
 G -1 J 19

5. Which expression represents the perimeter of the figure below?



A $4w + 6$ C $2w^3 + 8$
 B $2w^3 + 6$ D $4w + 8$

6. For the function $y = |3 - x|$, what does y equal when $x = 4$?

F -7 H 1
 G -1 J 7

7. Solve $4 - m = 7$.

A -11 C 3
 B -3 D 11

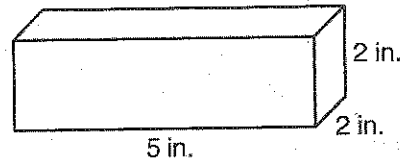
8. 8 more than 4 times a number is equal to 4 less than 6 times the number. What is the number?

F 1.2 H 6
 G 2 J 7.5

9. Solve $|3x - 3| = 6$.

A -1 C $-1, 3$
 B $-1, -3$ D $1, 3$

10. Every dimension of the prism below was multiplied by a scale factor to form a similar prism. The volume of the new prism is 540 square inches. What was the scale factor?



F 3 H 20
 G 8 J 27

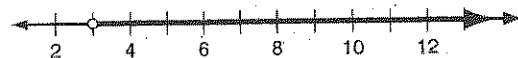
11. Jeremy receives a base salary of \$25,000 plus 5% commission on his sales. If Jeremy received a total salary of \$45,000 last year, what were his total sales?

A \$20,000 C \$400,000
 B \$70,000 D \$900,000

12. What is the percent increase from 70 to 98?

F 1.4% H 40%
 G 28% J 140%

13. Which situation matches the graph shown below?



A Jillene has more than three feet of rope.
 B Nemili bought at least 3 notebooks.
 C Scruffy is at most 3 years old.
 D Willard is not 3 feet tall.

Cumulative Test

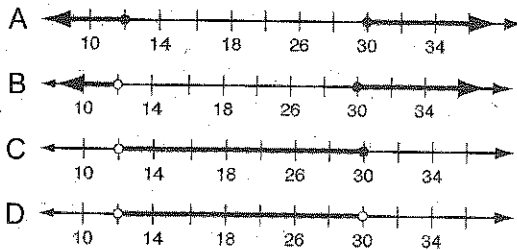
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14. Solve the inequality $-\frac{5}{3}g \leq 15$.

F $g \leq -25$ H $g \leq -9$

G $g \geq -25$ J $g \geq -9$

15. A director is auditioning parts for a movie from actors who are older than 12 and no more than 30 years old. Which graph shows the ages of actors the director is considering?



16. Which represents the solution of
- $2|x| + 3 < 15$
- ?

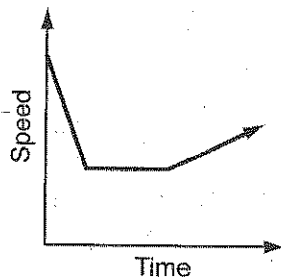
F $x > 6$ OR $x < -6$

G $x < 6$ OR $x > -6$

H $x > -6$ AND $x > 6$

J $x > -6$ AND $x < 6$

17. Which situation could be represented by the graph below?



- A A woman runs faster until she reaches her top speed and then slows down.
- B A dog walks down a hill, across a field, and up another hill.
- C A train slows down, travels slowly through a tunnel, and then accelerates.
- D A car slows down, waits at a stop light, and then accelerates.

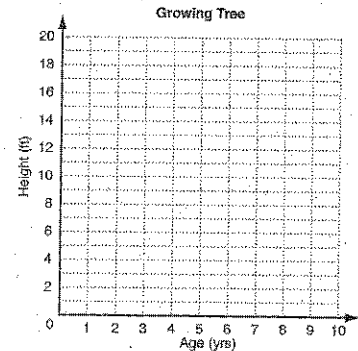
18. A buffet costs \$15 plus \$2 for each drink. Which function gives the total cost?

F $c(d) = 15 + 2d$ H $c(d) = 17d$

G $c(d) = 2 + 15d$ J $c(d) = 17 + d$

19. The height of a tree is measured at 4 different times. Draw a scatter plot and trend line.

Age of tree (yrs)	Height (ft)
1	2
2	3
3	5
4	6



What is the best prediction for the height of the tree when it is 8 years old?

A 6 ft

C 12 ft

B 8 ft

D 18 ft

20. What is the 19th term in the arithmetic sequence 11, 7, 3, -1, ...?

F -65

H -57

G -61

J -53

21. Find the slope of the line that contains the points (3, 2) and (-3, 8).

A -1

C 1

B 0

D 6

22. What is the distance between A(0, 5) and B(5, -7)?

F $\sqrt{17}$

H 13

G $\sqrt{21}$

J 169

23. Which equation describes the line with a slope of -3 that contains the point (2, 4)?

A $y - 4 = -3(x - 2)$

B $y + 2 = -3(x + 4)$

C $-3(y - 4) = x - 2$

D $-3(y + 2) = x + 4$

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Cumulative Test
continued

24. $f(x) = 4x + 1$ and $g(x) = -4x + 4$. Which describes the translation from $f(x)$ to $g(x)$?
- F a translation down 3 units
 - G a translation up 3 units
 - H a reflection across the y -axis and a translation up 3 units
 - J a reflection across the y -axis and a translation down 3 units

25. Which ordered pair is a solution of
- $$\begin{cases} x - y = -10 \\ 2y + x = 8 \end{cases} ?$$

- A $(-4, 6)$
- B $(-2, 8)$
- C $(2, 3)$
- D $(4, 2)$

26. Which system has an infinite number of solutions?

- F $\begin{cases} x + 2 = y \\ 4 = 2y - x \end{cases}$
- G $\begin{cases} 2y + 6 = 4x \\ -3 = y - 2x \end{cases}$
- H $\begin{cases} y + 3 = 2x \\ 4x = 2y - 3 \end{cases}$
- J $\begin{cases} y = 2x - 5 \\ -2 = y - 2x \end{cases}$

27. Bianca is buying shirts s and pants p for the new school year. Shirts cost \$10 each and pants cost \$15 each. She needs at least 4 shirts and 2 pairs of pants, and can spend no more than \$100. Which system represents this situation?

- A $\begin{cases} s \geq 4 \\ p \geq 2 \\ 10s + 15p \leq 100 \end{cases}$
- B $\begin{cases} s \geq 4 \\ p \geq 2 \\ 15s + 10p \leq 100 \end{cases}$
- C $\begin{cases} s \geq 4 \\ p \geq 2 \\ s + p \leq 100 \end{cases}$
- D $\begin{cases} s \geq 4 \\ p \geq 2 \\ 10s + 15p \geq 100 \end{cases}$

28. Evaluate $2w^{-2}z^0$ for $w = 10$, and $z = 2$.

- F 0
- G $\frac{1}{50}$
- H $\frac{1}{25}$
- J 200

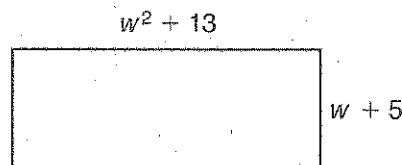
29. There are 6×10^{23} molecules of gas in a certain container. How many molecules of gas are there in 20 such containers?

- A 12×10^{23}
- B 1.2×10^{24}
- C 120×20^{24}
- D 1.2×10^{25}

30. Simplify $\frac{a^3}{a^6b^{-1}}$.

- F $\frac{b}{a^3}$
- G $\frac{a^3}{(ab)^{-6}}$
- H a^9b
- J $a^{18}b$

31. What is the perimeter of this rectangle?



- A $w^3 + 18$
- B $2w^2 + 2w + 36$
- C $w^3 + 5w^2 + 13w + 65$
- D $w^2 + w + 18$

32. Multiply $(3x - 4)(3x + 4)$.

- F $6x$
- G $9x^2 - 16$
- H $6x^2 - 16$
- J $9x^2 - 24x + 16$

33. Patton is organizing his stamp collection into a book. He has 42 foreign stamps and 70 U.S. stamps. He wants every page to have the same number of foreign stamps and the same number of U.S. stamps. If he puts the greatest number of stamps on each page, how many pages will he use?

- A 2
- B 6
- C 7
- D 10

34. Which is the complete factorization of $18k^3 - 12k^2$?

- F $3k^2(6k - 4)$
- G $6k(3k^2 - 2k)$
- H $k^2(18k - 12)$
- J $6k^2(3k - 2)$

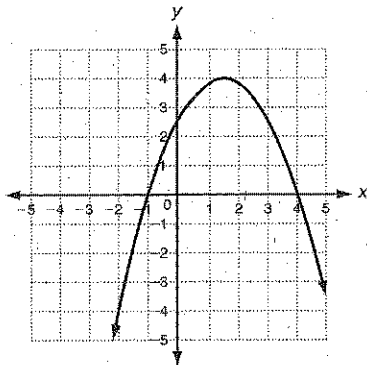
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Cumulative Test

continued

35. Which trinomial is a perfect square trinomial?
 A $2y^2 - 2y - 1$ C $9y^2 - 6y + 4$
 B $4y^2 - 4y + 1$ D $10y^2 - 20y - 4$
36. Factor $2m^3 - 12m^2 + 18m$ completely.
 F $2m(m - 3)^2$
 G $2(m^3 - 6m^2 + 9m)$
 H $2m(m - 3)(m + 3)$
 J $2m(m^2 - 6m + 9)$
37. Find the domain and range.



- A D: $x \leq 4$; R: $y \leq 4$
 B D: all real numbers; R: $y \leq 4$
 C D: $x \leq 4$; R: all real numbers
 D D: all real numbers
 R: all real numbers
38. Find the axis of symmetry of the graph of $y = 2x^2 + 8x - 3$.
 F $x = -4$ H $x = 2$
 G $x = -2$ J $x = 4$
39. Find the coordinates of the vertex for the graph of $f(x) = x^2 - 6x + 7$.
 A (3, -2) C (0, 7)
 B (-3, 34) D (2, -1)
40. The graph of $f(x) = 2x^2 - 3$ is widened and translated 7 units down. Which function could describe the new graph?
 F $g(x) = 3x^2 - 10$ H $g(x) = x^2 + 4$
 G $g(x) = 3x^2 + 4$ J $g(x) = x^2 - 10$

41. After a golf ball is hit, its height h in feet after t seconds is given by the function $h(t) = -16t^2 + 64t$. How many seconds is the golf ball in the air?
 A 2 C 4
 B 3 D 5
42. Find the solutions to $y = 2x^2 - 2x - 12$ by factoring.
 F -3 and 2 H -2 and 6
 G -2 and 3 J -3 and 12
43. A painter is working on a canvas that has a total area of 338 square inches. The canvas is x inches wide and twice as long. Find the value of x .
 A 13 C 112.7
 B 18.4 D 169
44. Complete the square to form a perfect square trinomial.

$$x^2 - 10 + \square$$

- F -25 H 5
 G -5 J 25

45. The equation for which graph will have a discriminant equal to 0?

