

Physics - Summer Packet

Name: _____

Date: _____

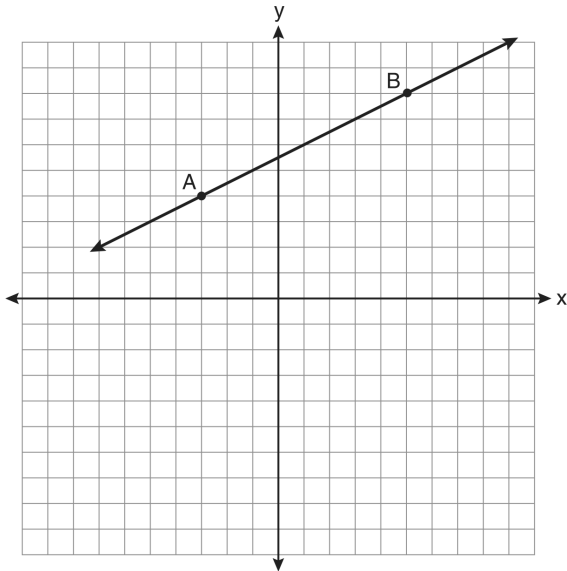
- If 0.000000023 is expressed in the form 2.3×10^n , what is the value of n ?
- In scientific notation, $54,000,000$ is expressed as
 - 5.4×10^{-7}
 - 54×10^7
 - 54×10^6
 - 5.4×10^7
- Express in simplest form: $\frac{(4 \times 10^6)(3 \times 10^2)}{(6 \times 10^{-5})(3 \times 10^6)}$
- When expressed in scientific notation, the number $0.0000000364 = 3.64 \times 10^n$. The value of n is
 - 8
 - 10
 - 10
 - 8
- State the value of the expression $\frac{(4.1 \times 10^2)(2.4 \times 10^3)}{(1.5 \times 10^7)}$ in scientific notation.
- What is the product of (5×10^2) and (8.4×10^3) expressed in scientific notation?
- The greatest common monomial factor of $12x^2$ and $8x^3$ is
 - $96x^5$
 - $12x^2$
 - $8x^3$
 - $4x^2$
- The greatest common factor of $12x^2y^3$ and $24xy^2$ is
 - $6xy$
 - $24xy^2$
 - $12xy^2$
 - $2xy$
- Which expression is equivalent to $(x^3)^{-1}$?
- What is the slope of the line which passes through the points $(2, 5)$ and $(-1, 0)$?

11. Write an equation of the line that passes through points (2, 3) and (4, 5).

12. Solve for y : $-4(y - 3) = 5(2y - 6)$

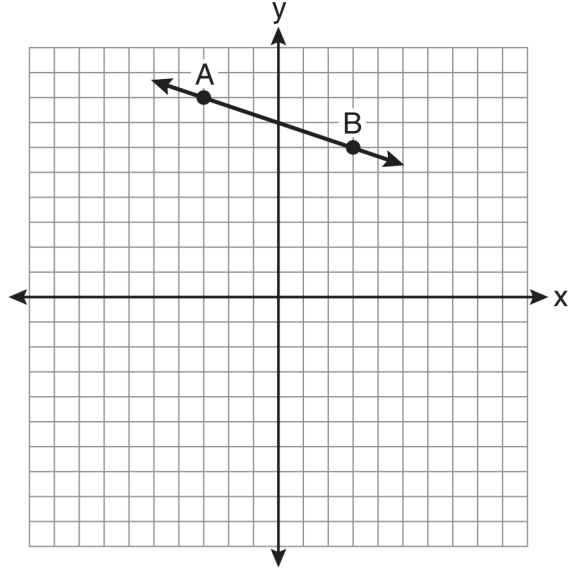
13. solve for x : $6(x - 4) + 10 = 2(10x - 2)$

14. In the diagram below, what is the slope of the line passing through points A and B ?



- A. -2 B. 2 C. $-\frac{1}{2}$ D. $\frac{1}{2}$

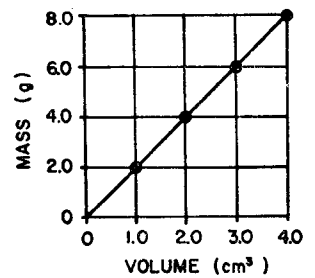
15. What is the slope of the line passing through the points A and B , as shown on the graph below?



- A. -3 B. $-\frac{1}{3}$ C. 3 D. $\frac{1}{3}$

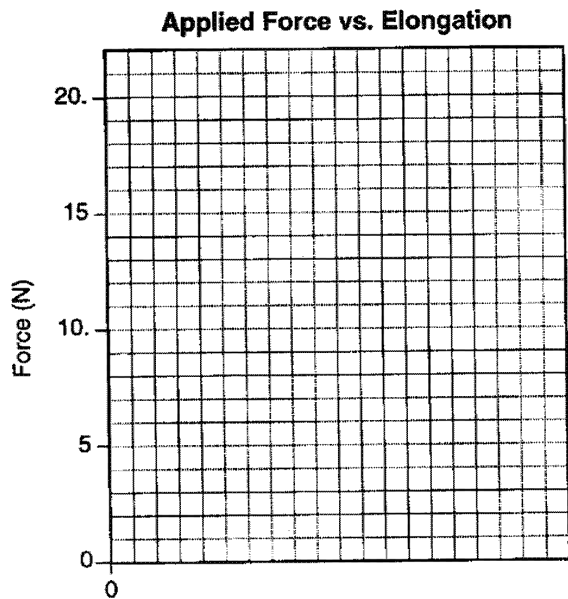
16. The masses and volumes of four samples of a material were determined by a laboratory experiment. The graph shown indicates the results obtained. The density of the material is

- A. 8.0 g/cm^3
 B. 2.0 g/cm^3
 C. 18 g/cm^3
 D. 32 g/cm^3



17. Base your answer(s) to the following question(s) on the information in the data table below. The data were obtained by varying the force applied to a spring and measuring the corresponding elongation of the spring.

Applied Force (N)	Elongation of Spring (m)
0.0	0.0
4.0	0.16
8.0	0.27
12.0	0.42
16.0	0.54
20.0	0.71



Mark an appropriate scale on the axis labeled "Elongation (m)."

18. Plot the data points for force versus elongation.

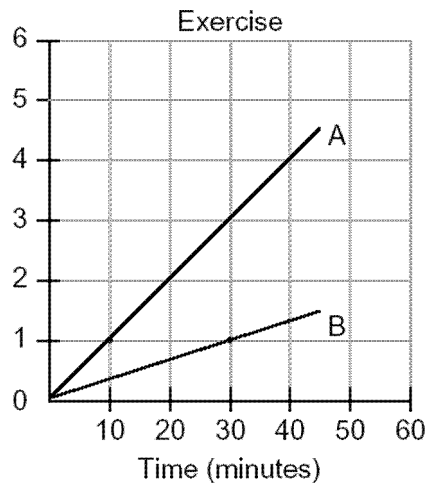
19. Draw the best fit line.

20. The quotient of $\frac{-18x^6}{6x^3}$ is equal to

A. $-3x^3$ B. $-3x^2$ C. $-12x^2$ D. $-12x^3$

21. If $10x^2y^3$ is divided by $-2x^3$, the quotient is

22. During a 45-minute lunch period, Albert (A) went running and Bill (B) walked for exercise. Their times and distances are shown in the accompanying graph. How much faster was Albert running than Bill was walking, in miles per hour?

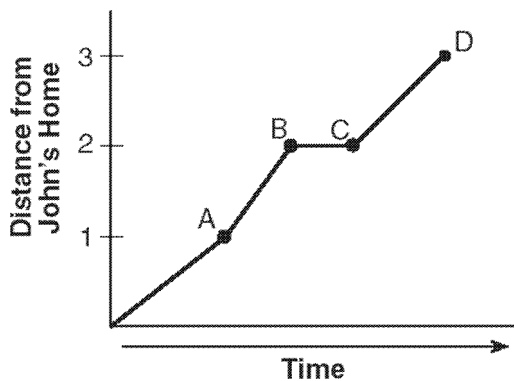


23. If x and y are defined as indicated by the accompanying table, which equation correctly represents the relationship between x and y ?

x	y
2	1
3	3
5	7
7	11

- A. $y = x + 2$ B. $y = 2x + 2$
 C. $y = 2x + 3$ D. $y = 2x - 3$

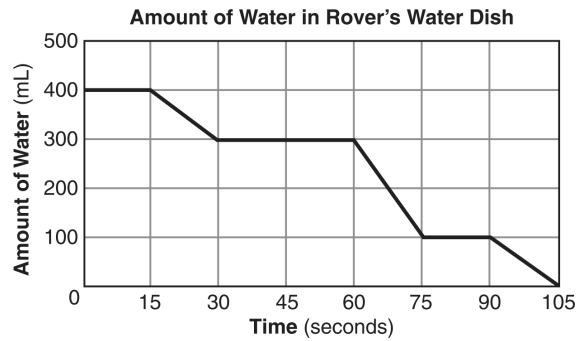
24. John left his home and walked 3 blocks to his school, as shown in the accompanying graph.



What is one possible interpretation of the section of the graph from point B to point C ?

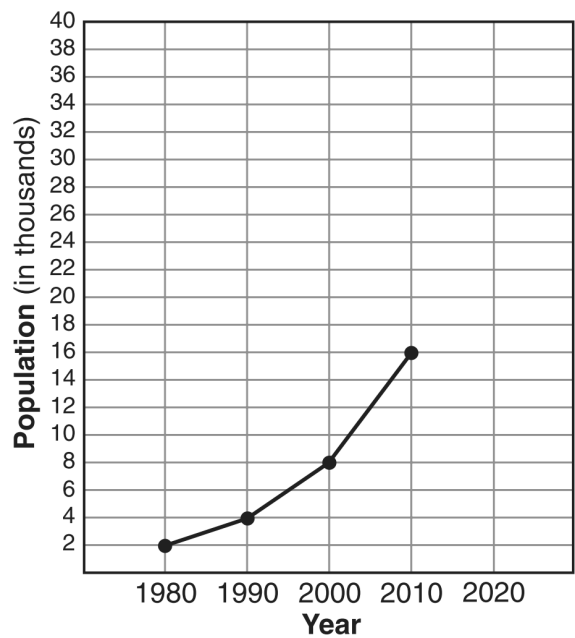
- A. John arrived at school and stayed throughout the day.
 B. John waited before crossing a busy street.
 C. John returned home to get his mathematics homework.
 D. John reached the top of a hill and began walking on level ground.

25. The accompanying graph shows the amount of water left in Rover's water dish over a period of time.



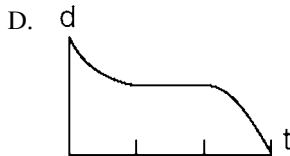
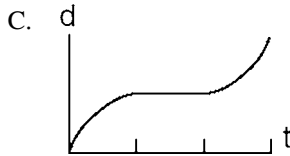
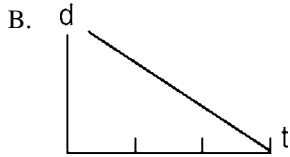
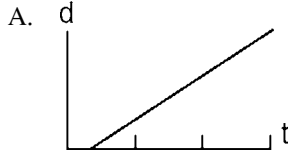
How long did Rover wait from the end of his second drink to the start of his third drink of water?

26. The population growth of Boomtown is shown in the accompanying graph.



If the same pattern of population growth continues, what will the population of Boomtown be in the year 2025?

27. A bug travels up a tree, from the ground, over a 30-second interval. It travels fast at first and then slows down. It stops for 10 seconds, then proceeds slowly, speeding up as it goes. Which sketch best illustrates the bug's distance (d) from the ground over the 30-second interval (t)?



28. What is the value of n in the equation $0.6(n + 10) = 3.6$?

- A. -0.4 B. 5 C. -4 D. 4

29. Using the formula $C = \frac{5}{9}(F - 32)$, find the value of C when $F = 5$.

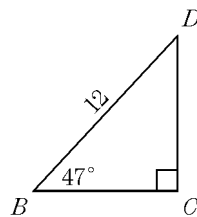
30. If $4k = a^2m + 3m3x$, the value of m in terms of a , k , and x can be expressed as

31. Solve for c in terms of a and b : $c^2 + ab = ab + 4$

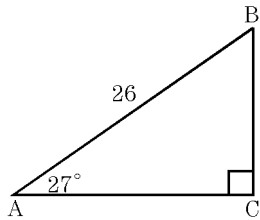
32. If $a = 3$ and $b = -2$, what is the value of the expression $\frac{a^{-2}}{b^{-3}}$?

- A. $-\frac{9}{8}$ B. -1 C. $-\frac{8}{9}$ D. $\frac{8}{9}$

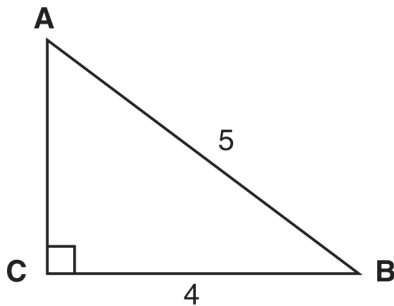
33. In right triangle BCD , $BD = 12$, $m\angle C = 90$, and $m\angle DBC = 47$. Find BC to the nearest tenth.



34. In the accompanying diagram of right triangle ABC , a right angle is at C , $\overline{AB} = 26$, and $m\angle A = 27$. Find the length of \overline{AC} to the nearest tenth.

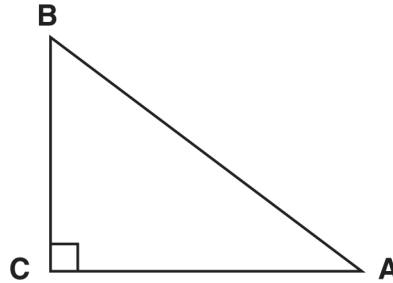


35. Which equation could be used to find the measure of one acute angle in the right triangle shown below?



- A. $\sin A = \frac{4}{5}$ B. $\tan A = \frac{5}{4}$
 C. $\cos B = \frac{5}{4}$ D. $\tan B = \frac{5}{4}$

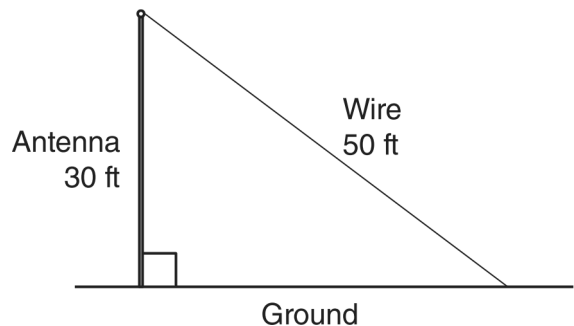
36. In the diagram of $\triangle ABC$ shown below, $BC = 10$ and $AB = 16$.



To the nearest tenth of a degree, what is the measure of the largest acute angle in the triangle?

- A. 32.0 B. 38.7 C. 51.3 D. 90.0
37. In right triangle ABC , $AB = 20$, $AC = 12$, $BC = 16$, and $m\angle C = 90$. Find, to the nearest degree, the measure of $\angle A$.

38. A communications company is building a 30-foot antenna to carry cell phone transmissions. As shown in the diagram below, a 50-foot wire from the top of the antenna to the ground is used to stabilize the antenna.



Find, to the nearest degree, the measure of the angle that the wire makes with the ground.

39. In $\triangle ABC$, $m\angle C = 90$. If $AB = 5$ and $AC = 4$, which statement is *not* true?

- A. $\cos A = \frac{4}{5}$ B. $\tan A = \frac{3}{4}$
C. $\sin B = \frac{4}{5}$ D. $\tan B = \frac{5}{3}$

40. What is the amplitude of the graph of $y = \frac{1}{2} \sin 2x$?

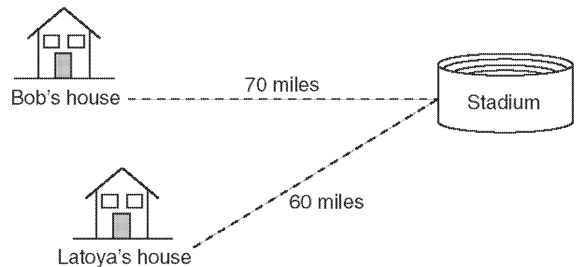
41. What is the amplitude of the graph of the equation $y = 2 \sin \frac{1}{2}x$?

- A. $\frac{1}{2}$ B. 2 C. π D. 2π

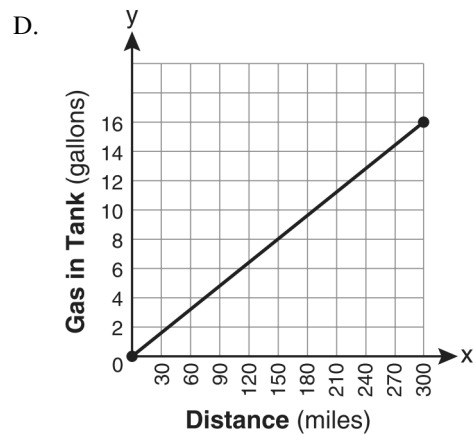
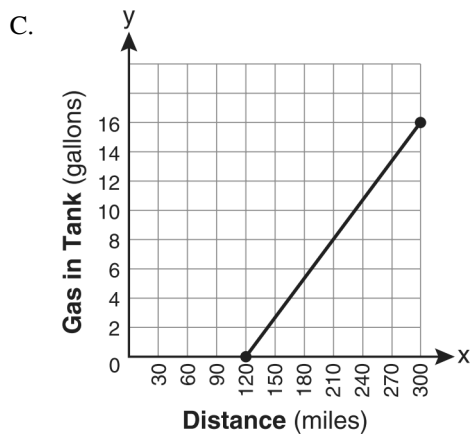
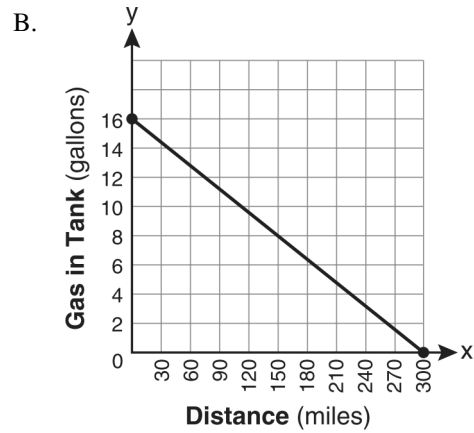
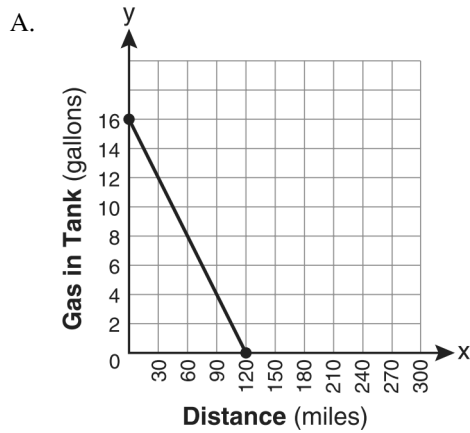
42. What is the amplitude of the graph of the equation $y = 2 \cos 3x$?

- A. $\frac{2\pi}{3}$ B. 2 C. 3 D. 6π

43. Bob and Latoya both drove to a baseball game at a college stadium. Bob lives 70 miles from the stadium and Latoya lives 60 miles from it, as shown in the accompanying diagram. Bob drove at a rate of 50 miles per hour, and Latoya drove at a rate of 40 miles per hour. If they both left home at the same time, who got to the stadium first?



44. The gas tank in a car holds a total of 16 gallons of gas. The car travels 75 miles on 4 gallons of gas. If the gas tank is full at the beginning of a trip, which graph represents the rate of change in the amount of gas in the tank?



45. A jogger ran at a rate of 8.9 miles per hour. Find the jogger's *exact* rate, in feet per second.

$$1 \text{ mile} = 5,280 \text{ feet}$$

46. In a baseball game, the ball traveled 350.7 feet in 4.2 seconds. What was the average speed of the ball, in feet per second?

- A. 83.5 B. 177.5
C. 354.9 D. 1,472.9

47. Find the area of a right triangle whose legs have lengths 8 and 4.

48. The area of a circle is 36π . What is the radius of the circle?

49. What is the circumference of a circle whose radius is 6?

- A. 6π B. 12π C. 36π D. 3π

50. If the circumference of a circle is 10π , what is the radius of that circle?

51. If $2y + 2w = x$, then w , in terms of x and y , is equal to

- A. $x - y$ B. $\frac{x - 2y}{2}$
C. $x + y$ D. $\frac{x + 2y}{2}$

52. The formula for the volume of a pyramid is $V = \frac{1}{4}Bh^2$. What is h expressed in terms of B and V ?

53. If $\frac{ey}{n} + k = t$, what is y in terms of e , n , k , and t ?

- A. $y = \frac{tn + k}{e}$ B. $y = \frac{tn - k}{e}$
C. $y = \frac{n(t + k)}{e}$ D. $y = \frac{n(t - k)}{e}$