Timothy Moore
Pre-Algebra B: U13, L13
Date: 4/30/07
Score: 100%

Name Date

Semester Assessment

DIRECTIONS: Complete your work on a separate sheet. Write each answer in the space provided. You may use the Pre-Algebra B Formula Reference sheet during the assessment.

For Problems 1–2: Answer True or False.

1. (–2, –1) is a solution of $x - 4y = 2$.

2. (2, –6) is a solution of the system: $2x + y = -2$
$x - y = 9$

Solve the inequality.

3. $5m - 8 \geq 22$

For Problems 4–5: Solve. Choose the correct answer.

4. $6p - 2(3 - 2p) = 14$

A. $p = 2$ B. $p = 3$ C. $p = 10$ D. $p = 20$

5. $\frac{2}{3}x - y = 6$

A. $y = -\frac{2}{3}x + 6$ B. $y = \frac{2}{3}x - 6$

C. $y = \frac{2}{3}x + 6$ D. $y = -\frac{2}{3}x - 6$

6. It takes a marathon runner 25 minutes to warm up and $6\frac{1}{2}$ minutes to run each mile. Which equation describes the total time (t) required to warm up and run d miles?

A. $25t = 6\frac{1}{2}d$ B. $t = 6\frac{1}{2} + 25d$

C. $d = 25 + 6\frac{1}{2}t$ D. $t = 25 + 6\frac{1}{2}d$

Complete the sentence.

7. One way to find the solution to a system of equations is to graph the two equations and then find the point of _____.

Answers

1. True

2. False

3. m, 6

4. A

5. B

6. D

7. intersection

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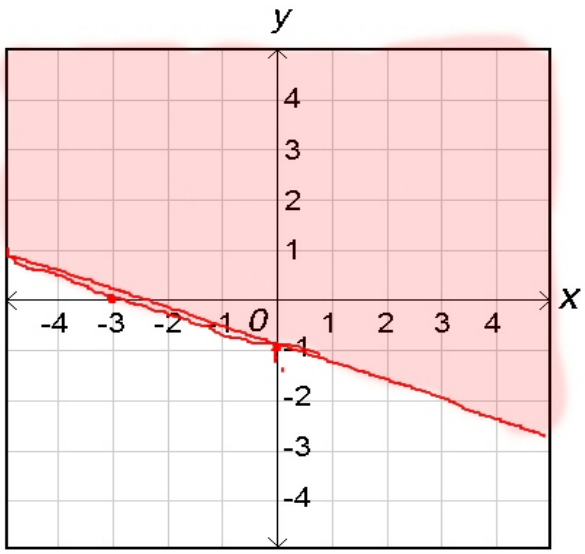
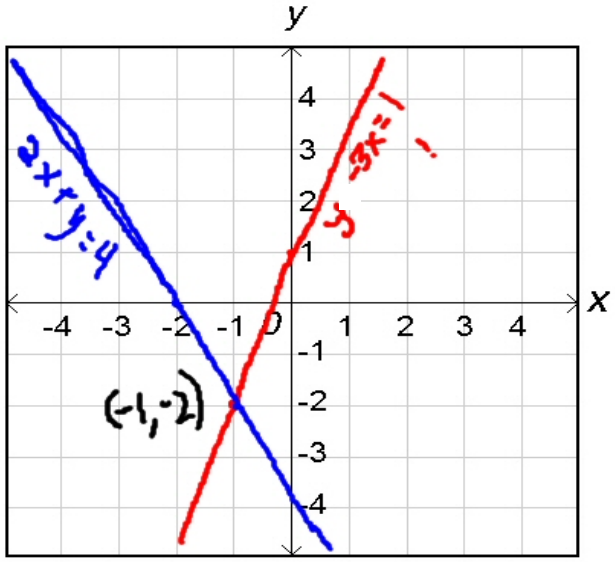
For Problems 8–9: Use the coordinate grid provided.

8. Graph $x + 3y > -3$.



9. Graph the system of equations:

$2x + y = -4$ and $y - 3x = 1$



10. What is the solution to the system of equations in Problem 9?

Answers

8. See graph.

9. See graph.

10. (-1, -2)

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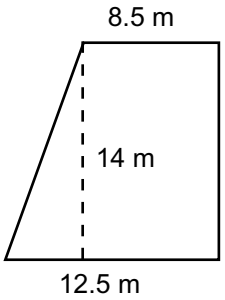
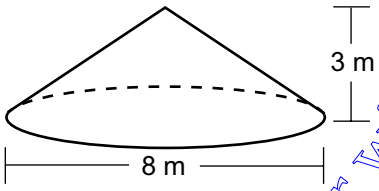
For Problems 11–16: Solve.

11. Find the area of the trapezoid.



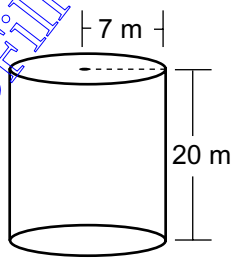
12. Find the volume of a prism with base area = 36 cm^2 and height = 8.5 cm.

13. Find the volume of the cone. Use $\pi \approx 3.14$ and round to three decimal places.



14. A carpet remnant is on sale for $828.00. If the carpet piece measures 8 ft by 9 ft, what is the cost per square foot?

15. Find the lateral area of the cylinder. Use $\pi \approx \frac{22}{7}$.



16. Find the total surface area of the cylinder in Problem 15.

Answers

11. 147 square meters

12. 306 cubic centimeters

13. 50.2 cubic centimeters

14. $11.50

15. 880 cubic meters

16. 1188 square meters

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For Problems 17–18: Choose the correct answer.

17. What is the length of a diagonal of a 15-cm by 15-cm square.

A. $15\sqrt{2}$ cm
B. 15 cm
C. $\frac{\sqrt{2}}{15}$ cm
D. $15\sqrt{3}$ cm

18. A ladder 8 ft long resting against a house makes a 60° angle with the ground. How far up the house does it reach?

A. 4 ft
B. 8 ft
C. $4\sqrt{3}$ ft
D. $\frac{\sqrt{3}}{4}$ ft

For Problems 19–21: Answer True or False.

19. $-\sqrt{100} > -\sqrt{64}$

20. $\sqrt{16} + \sqrt{9} = \sqrt{16 + 9}$

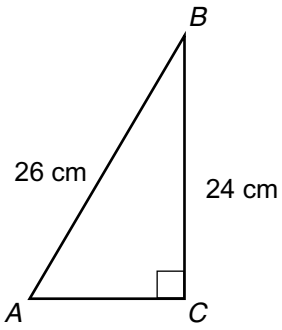
21. The triangle with side lengths 24, 45, and 51 is a right triangle.

Refer to the triangle for Problems 22–24.

22. Find the length of $\overline{AC}$.

23. Find sin *A*, in simplest ratio form.

24. Find tan *B*, in simplest ratio form.



Solve.

25. Sean's sail is in the shape of a right triangle. Sean knows that the longest side is 13 m long and the shortest side is 5 m, but he needs to know the length of the remaining side that runs along the mast. Find the length of the missing side of Sean's sail.

Answers

17. A

18. C

19. False

20. False

21. True

22. 10 cm

23. 12/13

24. 5/12

25. 12 m

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Choose the correct answer.

26. The probability of snow tomorrow is 60%. What are the odds in favor of snow?

A. 2 to 3 B. 3 to 2 C. 3 to 5 D. 2 to 5

For Problems 27–31: Solve.

27. In how many different ways can you arrange the letters in the word THINK if you take the letters 3 at a time?

28. A marble is drawn at random and replaced from a bag that contains 6 green marbles and 4 red marbles. Then a second marble is drawn. Find the probability that both marbles are red. Write your answer as a simplified fraction.

29. Of a random sample of 750 disposable cameras, 3 were found to be defective. What is the probability that the next camera will be defective? Express your answer in decimal form.

30. Tim scored 85, 88, 87, 93, 95, 92, and 83 on his math tests. What is the least he can score on the next test if he wants to have at least a 90 average?

31. A box contains 6 nickels, 8 dimes, and 2 quarters. You are allowed to select one coin without looking. If V = the value in cents of the coin you select, what is the expected value of V?

Answers

26. B

27. 60

28. 4/25

29. 0.004

30. 97

31. 10 cents

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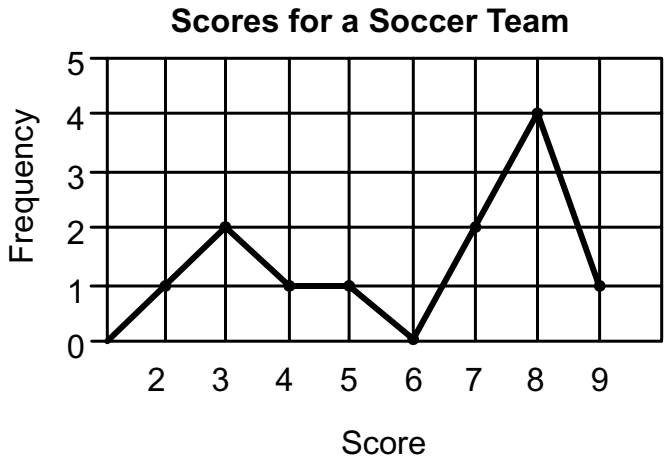
Refer to the frequency polygon for Problems 32–34.



32. Find the mean.

33. Find the median.

34. Find the mode.

For Problems 35–38: Perform the indicated operation.

35. $(6x^3 - 13x^2 - 12) - (4x^3 - 11x^2 - 5x + 2)$

36. $(-4z^2 + 8z - 3)(3z + 5)$

37. $(9a - 4)^2$

38. $(x^3 - 4x^2 - 3x + 18) \div (x - 3)$

Answers

32. 6

33. 7

34. 8

35. 2x^3 - 2x62 +5x -14

36. -12z^3 + 4z^2 +31z -15

37. 81a^2 -72a +16

38. x62 -x -6