Honors Geometry Name answer key

Algebra Review

Write an algebraic expression to represent each verbal expression.

1.) Fourteen decreased by the square of a number $14 - x^2$

2.) Twice the sum of a number and 11 $2(x+11)$

3.) The product of the square of a number and five $5x^2$

4.) The square of the sum of a number and 13 $(x+13)^2$

Define a variable and write an inequality for each problem. Then solve the inequality.

5.) The product of 11 and a number is less than 53. $11x < 53$ $x < \frac{53}{11}$

6.) Three fourths of a number decreased by 25 is at least 8. $\frac{3}{4}x - 25 \geq 8$ $x \geq 44$

7.) The opposite of five times a number is less than 321. $-(5x) < 321$ $x > -64\frac{1}{5}$

8.) Ninety decreased by 5 is greater than or equal to the product of a number and 10.

$90 - 5 \geq 10x$ $x \leq 8\frac{1}{2}$

Word Problems—Solve the following word problems by setting up an equation.

Hint—you might have to use the quadratic formula or solve by factoring- draw diagrams if needed.

9.) A picture has a height that is 4/3 its width. It has an area of 192 square inches. What are the pictures dimensions?

12" x 16"

10.) The product of two consecutive negative integers is 1122. What are the numbers?

-33 and -34

11.) The length of a tropical garden at a local conservatory is 5 feet more than its width. A walkway 2 feet wide surrounds the outside of the garden. If the total area of the walkway and garden is 594 square feet, find the dimensions of the garden.(draw a diagram)

18' x 23'

Don't forget you're supposed to be writing equations to solve these word problems!

12.) Find two integers whose sum is 15 and whose product is 54.

9 and 6

13.) The width of a rectangle is 5 less than its length. The perimeter of the rectangle is 68. Find the length of the rectangle.

19.5

14.) The length of a rectangle is 2 less than 3 times its width. If the area measures 65 square meters find the dimensions of the rectangle.

5m x 13m

Solve the following systems of equations. Leave exact answers please. Show all work.

15. $y = x + 3$
$5x + y = 9$
(1, 4)

16. $14x + 2y = 34$
$x - 5y = 5$
$\left(\frac{5}{2}, -\frac{1}{2}\right)$

17. $4x + 3y = -6$
$5x - 6y = -27$
(−3, 2)

18. $4x + 4y = 0$
$-x - 2y = 4$
(4, −4)

19. $8x + 6y = 180$
$4x + 15y = 180$
(16.875, 7.5)

20. $y + 15 + 39 - x = 90$
$x + y + y + 15 = 180$
(31, 67)

21. Your school sold 456 tickets for the high school play. An adult ticket costs $3.50 and a student costs $1.00. The total ticket sales was $1131. How many adult tickets and how many student tickets did they sell? Set up a system to solve.

270 adult, 186 student

Factor to solve the following equations. Show all work and method of factoring and place solutions on the line.

22. $y^2 - 15y - 54 = 0$ $y = 18, -3$

23. $x^2 + 12x = -32$ $x = -4, -8$

24. $k^2 + 28 = 16k$ $k = 14, 2$

25. $c^2 - 11c - 60 = 0$ $c = 15, -4$

26. $3x^2 + 10x - 8 = 0$ $x = -4, 2/3$

27. $6x^2 - 7x = 3$ $x = 3/2, -1/3$

28. $5x^2 + 16x + 3 = 0$ $x = -1/5, -3$

29. $3x^2 - 15x = 42$ $x = 7, -2$

30. $20x^2 + 80x + 35 = 0$ $x = -1/2, -7/2$

31. $49d^2 + 28d + 4 = 0$ $d = -2/7$ (double root)

32. $25n^2 - 64 = 0$ $n = \pm 8/5$

33. $4x^2 = 16$ $x = \pm 2$