Solve:

$$1. \frac{2x-9}{3}=8-3x$$

$$2. \frac{1}{2}\left(6x-4\right)=4x-9 $$

$$3. \frac{3}{4}m- \frac{m}{8}= \frac{-1}{2}m+6$$

$$4. 3\left(y-4\right)- 10= -\left(9-5y\right)+3 $$

Solve and Graph. Write answers as inequalities and in interval notation:

$$5. 7n-2\left(n+5\right)<3n-16$$

$$6. 4n+9 \leq 3\left(2n+1\right)$$

$$7. m-2 < -8 or \frac{m}{8 } >1$$

$$8. 8x+8 \geq -64 and-7-8x \geq -79$$

$$9. -1-10a < -1 or 10+3a \leq -5$$

$$10. 2p-2 \leq 4p-8 \leq 3p-3$$

Solve. For all questions, define your variable and then write and solve an equation or inequality. All answers must be written in complete sentences.

11. The student council wants to rent a ballroom for the junior prom. The ballroom’s rental rate is $1500 for 3 hours and $125 for each additional half hour. Suppose the student council raises $2125. What is the maximum number of hours for which they can rent the ballroom?

12. Find three consecutive odd integers such that the sum of the second and third integers is four times the first.

13. A college student is moving into a campus dormitory. The student rents a moving truck for $19.95 plus $0.99 per mile. Before returning the truck, the student fills the tank with gasoline, which costs $65.32. The total cost is $144.67. How many miles did the student drive the truck?

14. Nicholas wants to order a pizza. He has a total of $13. The pizza costs $7.50 plus $1.25 per topping. Write and solve an inequality showing how many toppings he can order on his pizza.

15. The perimeter of a rectangle is 114 cm. If its dimensions are 2u + 3 and 4u – 18, find the value of the length and width.