8.3 Creating Equations

NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ HOUR: \_\_\_\_\_\_\_\_\_\_\_\_\_

1-3 Write the following statements as mathematical expressions

Example 1 Question: Six more than the quotient of eighteen and a number n?

Answer: $6+\frac{18}{n}$

1. Difference of five times a number n and ten?

2. The quotient of three and the quantity of three less than one-sixth of a number x?

3. The difference of seven times a number x and the quotient of the number x and 3?

4-6 Write the following mathematical expressions into statements

Example 2 Question: $\frac{x}{6x-5}$

 Answer: “The quotient of a number x and the quantity ‘six times the number minus five.”

4. $2+\frac{100}{x}$

5. $5+\frac{1}{2}x$

6. $\left(5-x\right)+\frac{10}{x}$

First **write an equation** for each of the following situations, second **solve the equation** for unknown.

7. A salesman earns a $40,000 salary plus a commission of $300 for every machine he sells. He wants to earn $100,000, how many machines does he need to sell?

**EQUATION:**

**SOLUTION:**

8. Deep under the sea, a school’s play charges $3 for children and $7 for adults. They don’t want to be poor unfortunate souls, so they need to earn $210. If 24 adults come, how many children need to be with them?

**EQUATION:**

**SOLUTION:**

8. Eight more than the square of a number is the same as 6 times the number. Find the number?

**EQUATION:**

**SOLUTION:**

9. Seven less than 4 times the square of a number is 18. Find the number?

**EQUATION:**

**SOLUTION:**

10. Mr. Mumford is on a diet. He currently weighs 220 pounds. He will lose 4 pounds per month. How many months will it take him to reach 195 pounds?

**EQUATION:**

**SOLUTION:**

11. Mr. Parker lives is a square (because he is a square), he decides to increase his square’s sides by 3 which makes the area he lives in equal to 64 m2. What was the side lengths of the original square?

**EQUATION:**

**SOLUTION:**

12. Mr. Nelson was doing some gardening; he has a rectangular garden plot that is 4 by 5. He decided to grow more carrots so he increased the dimensions of his plot by the same amount on each side so he has an area of 56 m2. What will the dimensions of his new garden plot need to be?

**EQUATION:**

**SOLUTION:**

 13. The length of a photograph 1 cm less than twice the width. The area is 45 cm2. Find the dimensions of the photograph?

**EQUATION:**

**SOLUTION:**

14. A square field had 5 m added to its length and 2 m added to its width. The field then had an area of 130 m2. Find the length of a side of the original field?

**EQUATION:**

**SOLUTION:**

15. A rectangular lawn that is 8 m by 4 m is surrounded by gravel of uniform width. The combined area of the lawn and the gravel is 165 m2. What is the width of the gravel around the lawn?

**EQUATION:**

**SOLUTION:**