1. Express the given statement as an algebraic expression.
   The age, $a$, decreased by 10 years
   The age, $a$, decreased by 10 years is $\square$.

2. Express the given statement as an algebraic expression.
   One-half the age, $a$
   The statement "one-half the age, $a$" can be expressed algebraically as $\square$.

3. Express the given statement as an algebraic expression.
   $m$ subtracted from 13
   The statement "$m$ subtracted from 13" can be expressed algebraically as $\square$.

4. Express the given statement as an algebraic expression.
   Two pounds more than three times the weight, $w$
   The statement "two pounds more than three times the weight, $w$" can be written algebraically as $\square$.
   (Do not factor.)

5. Express the given statement as an algebraic expression.
   Thirteen years less than 9 times the age, $a$
   The statement "thirteen years less than 9 times the age, $a$" can be written algebraically as $\square$.

6. Express the given statement as an algebraic expression.
   One-seventh the weight, $w$, increased by 16 pounds
   The statement "one-seventh the weight, $w$, increased by 16 pounds" can be expressed algebraically as $\square$.

7. Ellen is taller than her son Steve. Ellen is 6 inches less than twice Steve's height, $h$. Write an expression for the difference in Ellen's and Steve's height in terms of $h$.
   The difference in Ellen's and Steve's height is $\square$. 
8. The price of stock in a computer company is 15% greater than the cost of stock in a bank, \( b \). Write an expression for the sum of the prices of the stocks in the computer company and the bank in terms of \( b \).

In terms of \( b \), the sum of the prices of the two stocks is \( \square \).

(Use integers or decimals for any numbers in the expression.)

9. Determine what \( x \) equals in the statement below.

Steve is 9 inches taller than Eric.
What does \( x \) equal in the given statement?

\( \square \) A. Eric's height
\( \square \) B. Steve's height
\( \square \) C. 9 inches
\( \square \) D. Eric's height or Steve's height

10. Determine what \( x \) equals in the statement below.

Together Dan and Eric weigh 370 pounds.
What does \( x \) equal in the given statement?

\( \square \) A. Dan's weight
\( \square \) B. Eric's weight
\( \square \) C. 370 pounds
\( \square \) D. Dan's weight or Eric's weight
11. The area of the attic is 26 square feet greater than twice the area of the living room. State what quantity the variable x represents and express the second quantity in terms of x.

State what quantity the variable x represents.

☐ A. the area of the attic
☐ B. the area of the living room
☐ C. 26 square feet
☐ D. the area of the living room or the area of the attic

Express the second quantity in terms of x.

☐ A. $2x - 26$
☐ B. $2x + 26$
☐ C. $2(x - 26)$
☐ D. $2(x + 26)$

12. Steve's age is 7 years more than $\frac{1}{2}$ Melissa's age. State what quantity the variable x represents and express the second quantity in terms of x.

State what quantity the variable x represents.

☐ A. Melissa's age
☐ B. Steve's age
☐ C. 7 years
☐ D. Steve's age or Melissa's age

Express the second quantity in terms of x.

☐ A. $\frac{1}{2}(x + 7)$
☐ B. $\frac{1}{2}(x - 7)$
☐ C. $\frac{1}{2}x + 7$
☐ D. $\frac{1}{2}x - 7$

13. Steve's age is nine less than twice Liz's age, a. Write an expression for Steve's age.

In terms of Liz's age, a, Steve's age is [ ]. (Do not factor.)
14. Melissa rented a truck for a trip. She paid a daily fee of $35 and a mileage fee of 20 cents a mile. Write an expression that represents her total cost when she travels x miles in one day.

Melissa's total cost, in terms of x, is \[ \square \].
(Use integers or decimals for any numbers in the expression.)

15. Dan's electricity use this year decreased by 8% from his electricity use last year, u. Write an expression for his electricity use this year in terms of u.

In terms of u, Dan's electricity use this year is \[ \square \].

16. Set up an equation that can be used to solve the problem. Solve the equation and answer the question asked.

Three subtracted from 9 times a number is 15. Find the number.

Which equation below can be used to solve the problem?

- \( A. x - 9(3) = 15 \)
- \( B. 9x - 3 = 15 \)
- \( C. 3x - 9 = 15 \)
- \( D. (9 - 3)x = 15 \)
- \( E. 9x + 3 = 15 \)

What is the unknown number?

\[ x = \square \]

17. The numbers on two consecutively numbered gym lockers have a sum of 141. What are the locker numbers?

The locker numbers are \[ \square \].
(Use a comma to separate answers.)

18. The room numbers of two adjacent classrooms are two consecutive odd numbers. If their sum is 1028, find the classroom numbers.

The classroom numbers are \[ \square \]. (Use a comma to separate answers.)

19. The larger of two numbers is 8 less than twice the smaller number. The sum of the two numbers is 37. Find the two numbers.

What are the numbers? \[ \square \]
(Use a comma to separate answers as needed.)
20. A friend collects ceramic and stuffed frogs. She presently has 320 frogs. She wishes to add 5 a week to her collection until her collection reaches a total of 400 frogs. How long will it take your friend’s frog collection to reach 400 frogs?

How long will it take for the frog collection to reach 400 frogs?

☐ weeks

21. The cost of living last year went up 8%. Fortunately, Alice Swanson got a 8% raise in her salary from last year. This year she is earning $34,140. How much did she make last year?

$☐ (Round to the nearest hundredth.)

22. To find the average of a set of values, you find the sum of the values and divide the sum by the number of values.

(a) If Paul’s first three test grades are 72, 87, and 78, write an equation that can be used to find the grade that Paul must get on his fourth exam to have an 80 average.

(b) Solve the equation from part (a) and determine the grade Paul must receive.

(a) Which equation below can be used to find the grade that Paul must get on his fourth exam to have an 80 average?

○ A. \[ 80 = \frac{72 + 87 + 78 + x}{4} \]

○ B. \[ 80 = \frac{4}{72 + 87 + 78 + x} \]

○ C. \[ 80 = (72 + 87 + 78 + x) \cdot 4 \]

○ D. \[ 80 = 72 + 87 + 78 + x \]

(b) Paul must receive a score of ☐ on his fourth exam to have an 80 average.

23. Two high-speed ferries leave at the same time from a city to go to the same island. The first ferry, the Cat, travels at 37 miles per hour. The second ferry, the Bird, travels at 23 miles per hour. In how many hours will the two ferries be 70 miles apart?

The ferries will be 70 miles apart after ☐ hour(s).

24. Two trains traveling on parallel tracks are going toward each other from a distance of 510 miles. If the freight train is moving at 39 mph and the passenger train is moving at 46 mph, when will the trains pass each other?

The two trains expect to pass each other in ☐ hours.
25. Dennis and Chris Reed leave simultaneously from the same point hiking in opposite directions, Dennis walking at 3 miles per hour and Chris at 4 mph. How long can they talk on their walkie-talkies if the walkie-talkies have a 1.5 mile radius?

□ hrs  (Round to one decimal place.)

26. Betty drives for a number of hours at 62 miles per hour. When traffic slows, she drives at 42 miles per hour. She travels at 42 miles per hour for 0.5 hour longer than she traveled at 62 miles per hour. The difference in the distance traveled at 42 mph and 62 mph is 1 mile. Determine how long Betty traveled at 42 miles per hour.

Betty traveled at 42 miles per hour for □ hours.

27. Paul and Donna Petrie invested $23,000, part at 6% simple interest and the rest at 2% simple interest for a period of 1 year. How much did they invest at each rate if their total annual interest from both investments was $740?

The amount invested at 6% is $□.

The amount invested at 2% is $□.

28. Aleksandra Tomich invested $11,361, part at 8% simple interest and part at 4% simple interest for a period of 1 year. How much did she invest at each rate if each account earned the same interest?

Aleksandra invested $□ at 8% and $□ at 4%.

29. The manager of a store selling tea plans to mix a more expensive tea that costs $9 per pound with a less expensive tea that costs $6 per pound to create a 110-pound blend that will sell for $6.90 per pound. How many pounds of each type of tea are required?

The amount of the more expensive tea required is □ pounds.
(Type an integer or a decimal.)

The amount of the less expensive tea required is □ pounds.
(Type an integer or a decimal.)

30. A grocery store sells certain candies in bulk. The Good and Plenty cost $2.21 per pound and Sweet Treats cost $3.17 per pound. If Jane Strange takes 3 scoops of Good and Plenty and mixes it with 6 scoops of Sweet Treats, how much per pound should the mixture sell for? Assume each scoop contains the same weight of candy.

The mixture should sell for $□ per pound.
1. $a - 10$

2. $\frac{1}{2}a$

3. $13 - m$

4. $3w + 2$

5. $9a - 13$

6. $\frac{1}{7}w + 16$

7. $(2h - 6) - h$

8. $b + (b + 0.15b)$

9. A

10. D

11. B

12. A

13. $2a - 9$

14. $35 + 0.20x$
15. \( u - 0.08u \)

16. \( B \)
\( \frac{1}{2} \)

17. 70, 71

18. 513, 515

19. 15, 22

20. 16

21. 31, 611.11

22. A
\( \frac{83}{100} \)

23. 5

24. 6

25. 2.1

26. 1.5

27. 7000
16,000

28. 3,787
7,574
29. 33
    77

30. 2.85