**Algebra IA** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ 1.2/1.3 Worksheet Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour \_\_\_\_\_\_

Write Expressions, Equations, and Inequalities

**Write an algebraic expression for each verbal expression.**

1. the sum of a number and 10 2. 15 less than *k*

3. the product of 18 and *q* 4. 6 more than twice *m*

5. 8 increased by three times a number 6. the difference of 17 and 5 times a number

7. the product of 2 and the second power of *y* 8. 9 less than *g* to the fourth power

9. the difference of 10 and *u* 10. the sum of 18 and a number

11. the product of 33 and *j* 12. 74 increased by 3 times *y*

13. 15 decreased by twice a number 14. 91 more than the square of a number

15. three fourths the square of *b* 16. two fifths the cube of a number

**Write an expression for the situation.**

17. The height of a wall that is *b* bricks tall if each brick is 3 inches taller.

19. The number of miles in a 4-mile walk left to walk if you have already walked *m* miles.

18. The total number of lawns you will mow today if you have already mowed 4 lawns and will mow *w* more lawns.

20. Each person’s share if *p* people share 3 gallons of water equally.

21. A used bookstore sells paperback fiction books in excellent condition for $2.50 and in fair condition for $0.50. Write an expression for the cost of buying *x* excellent-condition paperbacks and *f* fair-condition paperbacks.

**Translate each sentence into an equation or inequality.**

22. Two added to three times a number *m* is the same as 18.

24. Twice *a* increased by the cube of *a* equals *b*.

26. Seven less than the sum of *p* and *t* is as much as 6.

28. The sum of *x* and its square is less than or equal to *y* times *z*.

23. Fifty-three plus four times *b* is greater than 21.

25. The sum of five times *h* and twice *g* is equal to 23.

27. One fourth the sum of *r* and ten is less than *r* minus 4.

29. Three plus the sum of the squares of *w* and *x* is 32.

**Translate each sentence into a formula.**

30. The perimeter *P* of a square equals four times the length of a side *s*.

32. The area *A* of a square is the length of a side *s* squared.

34. The perimeter *P* of a triangle is equal to the sum of the lengths of sides *a*, *b*, and *c*.

31. The area *A* of a circle is pi times the radius *r* squared.

33. The volume *V* of a rectangular prism equals the product of the length *l,* the width *w*,

and the height *h*.

35. The total cost *C* of gas is the price *p* per gallon times the number of gallons *g*.

36. Deanna and Cara each go for walks around a lake a few times per week. Last week, Deanna walked 7 miles more than Cara.

a. If *p* represents the number of miles Cara walked, write an equation that represents the total number of miles *T* the two girls walked.

b. If Cara walked 9 miles during the week, how many miles did Deanna walk?

c. If Cara walked 11 miles during the week, how many miles did the two girls walk

together?