

# Variables and Expressions

1. For each of the following indicate if it is a *variable* or an *expression*.

- a.  $s$       b.  $74t$       c.  $K$       d.  $x^2$       e.  $xy$       f.  $zz$

2. Write an algebraic expression for each verbal expression.

- a. the sum of  $p$  and 9      b.  $n$  divided by the sum of  $m$  and 10  
 c. the product of  $r$ ,  $s$ , and  $t$       d. a number  $x$  to the 7th power  
 e. the sum of  $4T$  and  $T$  cubed      f. seven times  $y$  squared  
 g. a number  $s$  decreased by 10      h.  $y$  increased by twice  $x$   
 i.  $a$  divided by the difference of  $a$  and 2.      j. five-sixths of the square of a number  $y$

3. Write as expressions using exponents.

a. $x \cdot x \cdot x \cdot x$	b. $45 \cdot y \cdot y \cdot y \cdot 45$	c. $b \cdot b \cdot b \cdot b \cdot b \cdot a \cdot a$
d. $(2m)(2m)(2m)$	e. $stststst$	f. $5m \cdot 2m \cdot 3n$

4. Write a verbal expression for each algebraic expression.

- a.  $m + 2n$       b.  $p^2 + 5$   
 c.  $6xy$       d.  $2k^{12}$   
 e.  $\frac{a+c}{4}$       f.  $\frac{1}{x-4}$   
 g.  $40 - y$       h.  $40 - y^3$

Expressions in parentheses are considered as one quantity.  
You can read them using the word 'quantity'.

$3(x + y)$   
"three times the quantity  $x$  plus  $y$ "

5. Write an algebraic expression for each verbal expression.

- a. the product of the quantity  $x$  plus  $y$  and the quantity  $x$  minus  $y$   
 b. the difference of 100 and  $b$  divided by the quantity  $2b$  plus 10  
 c. the quotient of the quantity 5 minus  $T$  squared and  $T$ .  
 d.  $8a$  reduced by the quantity  $b$  plus  $c$ .  
 e.  $n$  cubed increased by the quantity 6 minus  $n$  squared  
 f. two-thirds the quantity  $x$  squared minus  $y$  squared