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 4$T$ 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. $b \cdot b \cdot b \cdot b \cdot a \cdot a$ |
| d. $(2m)(2m)(2m)$ | e. ststststst | 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”.
   “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

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