Independent and Dependent Variables
Writing Equations

Example: A sailboat travels at an average speed of 17 miles per hour. The total distance, \( d \), in miles that the sailboat travels is equal to the rate times the number of hours, \( h \).

The distance depends on the number of hours sailing.

Dependent variable: distance (\( d \))
Independent variable: number of hours (\( h \))
Equation: \( d = 17h \)

Directions: Determine the dependent and independent variables in each scenario. Then use the variables to write an equation.

1. Lucia is taking her family out for ice cream. Each ice cream cone, \( c \), costs $2.50. Write an equation to represent her total cost, \( t \).

   Dependent variable: ______________________________________________________________

   Independent variable: ______________________________________________________________

   Equation: ______________________________________________________________

2. Corey burns 8 calories, \( c \), for every minute, \( m \), she runs on the treadmill. Write an equation to represent how many calories she could burn.

   Dependent variable: ______________________________________________________________

   Independent variable: ______________________________________________________________

   Equation: ______________________________________________________________
3. Jordan is going kayaking. It costs him $10.00 per hour, \( h \), and $4.50 to rent the kayak. Write an equation to represent Jordan’s total cost, \( t \), for kayaking.

Dependent variable: ________________________________________________

Independent variable: ____________________________________________

Equation: ________________________________________________________

5. Kyshell wants to buy some new clothes for school. Shirts, \( s \), cost $9.75 each and pants, \( p \), cost $12.50 each. Write an equation to represent the total cost, \( t \), of Kyshell’s clothes.

Dependent variable: ________________________________________________

Independent variables: ____________________________________________

Equation: ________________________________________________________
1. Lucia is taking her family out for ice cream. Each ice cream cone, \( c \), costs $2.50. Write an equation to represent her total cost, \( t \).

Dependent variable: total cost \( t \)
Independent variable: number of ice cream cones \( c \)
Equation: \[ t = 2.50c \]

2. Corey burns 8 calories, \( c \), for every minute, \( m \), she runs on the treadmill. Write an equation to represent how many calories she could burn.

Dependent variable: number of calories burned \( c \)
Independent variable: number of minutes running \( m \)
Equation: \[ c = 8m \]

3. Jordan is going kayaking. It costs him $10.00 per hour, \( h \), and $4.50 to rent the kayak. Write an equation to represent Jordan's total cost, \( t \), for kayaking.

Dependent variable: total cost \( t \)
Independent variable: number of hours \( h \)
Equation: \[ t = 10h + 4.50 \]

4. Liz is going to a carnival. Each ride, \( r \), that she wants to go on costs 2 tickets, \( t \). Write an equation to represent how many tickets Liz will need.

Dependent variable: total number of tickets \( t \)
Independent variable: number of rides \( r \)
Equation: \[ t = 2r \]

5. Kyshell wants to buy some new clothes for school. Shirts, \( s \), cost $9.75 each and pants, \( p \), cost $12.50 each. Write an equation to represent the total cost, \( t \), of Kyshell's clothes.

Dependent variable: total cost \( t \)
Independent variable: number of shirts \( s \) and pants \( p \)
Equation: \[ t = 9.75s + 12.50p \]