Algebra 1 Module 3.3 Homework KEY #3-16

For each situation, identify the independent and dependent variables. Write a function in function notation. Then use the function to solve the problem.

3. Almira earns $50 an hour. How much does she earn in 6 hours?

Dependent: amount of money Independent: number of hours Let \( h \) represent the number of hours Almira works. \( f(h) = 50h. \)

\( f(6) = 50(6) = 300 \)

Almira earns $300 in 6 hours.

4. Stan, a local delivery driver, is paid $3.50 per mile driven plus a daily amount of $75. On Monday, he is assigned a route that is 30 miles long. How much is he being paid for that day?

Dependent: amount of money Independent: number of miles driven Let \( m \) represent miles Stan drives. \( f(m) = 3.5m + 75. \)

\( f(30) = 3.5(30) + 75 = 180 \)

Stan earns $180 for Monday.

5. Bruce owns a small grocery store and charges $4.75 per pound of produce. If a customer orders 5 pounds of produce, how much does Bruce charge the customer?

Dependent: amount of money Independent: pounds of produce Let \( p \) represent the number of pounds of produce ordered. \( f(p) = 4.75p. \)

\( f(5) = 4.75(5) = 23.75 \)

Bruce charges the customer $23.75.

6. Georgia, a florist, charges $10.95 per flower bundle plus a $15 delivery charge per order. If Charlie orders 8 bundles of flowers and has them delivered, how much does Georgia charge Charlie?

Dependent: total charge Independent: number of bundles Let \( b \) represent the number of bundles ordered. \( f(b) = 10.95b + 15. \)

\( f(8) = 10.95(8) + 15 = 102.6 \)

Georgia charges Charlie $102.60.

7. Allison owns a music store and sells DVDs at $17.75 per DVD. If Craig orders 5 DVDs, how much does it cost?

Dependent: total cost Independent: number of DVDs Let \( d \) represent the number of DVDs ordered. \( f(d) = 17.75d. \)

\( f(5) = 17.75(5) = 88.75 \)

Craig owes Allison $88.75 for 5 DVDs.

8. Anne buys used cars at auction for $2000 per car. There is a $150 fee to take part in the auction. If Anne buys 13 used cars, how much does she pay in total?

Dependent: amount of money Independent: number of cars purchased Let \( c \) represent the number of cars purchased. \( f(c) = 2000c + 150. \)

\( f(13) = 2000(13) + 150 = 26,150 \)

Anne pays $26,150.

9. Harold, a real estate developer, sells houses at $250,000 per house. If he sells 9 houses, how much does he earn?

Dependent: amount of money Independent: number of houses sold Let \( h \) represent the number of houses sold. \( f(h) = 250,000h. \)

\( f(9) = 250,000(9) = 2,250,000 \)

Harold earns $2,250,000 for selling 9 houses.
10. Gordon buys 3 HD TVs for $1200 each. There is a shipping charge of $90 to have the TVs delivered to his house. How much does Gordon pay in total?

Dependent: amount of money  Independent: number of HD TVs  Let \( t \) represent the number of TVs bought.  
\[ f(t) = 1200t + 90 \]
\[ f(3) = 1200(3) + 90 = 3690 \]
Gordon pays $3690 total.

11. Cindy is buying jackets for her local community charity’s auction. Each jacket costs $50. If Cindy bought 23 jackets, what is the total cost?

Dependent: amount of money  Independent: number of jackets  Let \( j \) represent the number of jackets purchased.  
\[ f(j) = 50j \]
\[ f(23) = 50(23) = 1150 \]
Cindy’s total cost for 23 jackets is $1150.

12. Autumn sells laptop computers for $600 each. If she sells 68 computers, how much money does she earn?

Dependent: amount of money  Independent: number of computers sold  Let \( c \) represent the number of computers sold.  
\[ f(c) = 600c \]
\[ f(68) = 600(68) = 40,800 \]
Autumn earns $40,800.

Write a function using function notation to describe each situation. Find a reasonable domain and range for each function.

13. Elijah has already sold $40 worth of tickets for a local raffle. He has 5 tickets left to sell at $5 per ticket.

\[ f(t) = 5.00 \cdot t + 40 \]
A reasonable domain is \{0, 1, 2, 3, 4, 5\}. The range is \{$40, $45, $50, $55, $60, $65$\}.

14. Mary has already sold $55 worth of tickets to the benefit concert. She has 3 tickets left to sell at $7 per ticket.

\[ f(t) = 7.00 \cdot t + 55 \]
A reasonable domain is \{0, 1, 2, 3\}. The range is \{$55, $62, $69, $76$\}.

15. A law firm charges $100 per hour for the first 3 hours plus a $300 origination fee for its services.

\[ f(t) = 100 \cdot h + 300 \]
A reasonable domain is \{1, 2, 3\}. The range is \{$400, $500, $600$\}.

16. A pay-for-service Internet company charges $5 per hour for the first 3 hours of service plus a $10 connection fee.

\[ f(h) = 5 \cdot h + 10 \]
A reasonable domain is \{1, 2, 3\}. The range is \{$15, $20, $25$\}. 