

Name: \_\_\_\_\_

## Expressions and Variables

1) Identify the variable in the expression  $21 + d$ .

2) Compare and contrast the expressions  $2 + x$  and  $2 + 3$ .

Evaluate the expression when  $x = 4$ .

3)  $10 - x$

4)  $x + 7$

5)  $2x$

6)  $\frac{32}{x}$

Evaluate the expression when  $m = 5$  and  $n = 6$ .

7)  $\frac{n}{2}$

8)  $m + n$

9)  $n - m$

10)  $mn$

11) In 2002, astronauts Carl Walz and Dan Bursch spent 196 days in orbit.



A. An astronaut in orbit circles Earth every 90 minutes and sees 16 sunrises each day. Let  $d$  be the number of days an astronaut is in orbit. Write a variable expression for the number of sunrises seen in  $d$  days.

B. Identify the value of  $d$  for Walz's and Bursch's 2002 space flight.

C. Find the number of sunrises Walz and Bursch saw.

Write a variable expression to represent the phrase.

12) 13 more than a number.

13) The sum of a number and 9.4.

14) The quotient of a number and 3.

15) A number divided by 41.

16) The product of 72 and a number.

17) The difference of a number and 1.

18) You can evaluate the expression  $50 - d$  to find the amount you have left on a 50 Aed gift card after you have spent  $d$  dirhams. Find the amount left after you have spent 18 Aed.

19) Hani belongs to an online DVD rental service. His yearly rental budget is 200 Aed. Each rental costs 4 Aed.

a. Copy and complete the table.

DVDs	Cost (Aed)	Amount Left (Aed)
1	4	196
2	8	192
3	?	?
4	?	?

b. Write a variable expression for the cost of  $r$  rentals.

c. Write a variable expression for the amount of your budget left after  $r$  rentals.

20) Are there any values of the variable  $a$  for which the expressions  $2 + a$  and  $2a$  have the same value? Explain.