THIRD SPACE LEARNING

Function Machine Worksheet

Algebra

Grades 6 to 8

Skill Questions

Name: .....

Date: .....

1 Given the function rule $f(x) = 3x + 2$, what is the output when the input is 4?

Answer

2 If a function machine triples the input and then subtracts 5, what is the output when the input is 7?

Answer

3 In a function machine, if the input, x, is doubled and then divided by 4, and the output, y, is 1, what was the original input?

Answer

4 If a function machine rule is $f(x) = x^2 - 1$, what is the output when the input is 3?

Answer

5 A function machine multiplies the input, x, by 2, and then adds 3. If the output y, is 11, what was the original input?

Answer

6 Given the function rule $f(x) = \frac{1}{2}x - 6$, what is the output when the input is 10?

Answer

7 If a function rule is $f(x) = -3x - 2$, what is the output when the input is 9?

Answer

8 In a function machine, if the input is halved and then multiplied by 5, and the output is 15, what was the original input?

Answer

9 A function machine subtracts 15 from the input. If the output is 49, what was the original input?

Answer

10 Given the function machine rule $f(x) = \frac{3}{x}$, what is the output when the input is 2?

Answer

Applied Questions

11 A toy factory produces stuffed animals. The cost to produce each stuffed animal is $5 plus $2 for every hour spent on stitching. Write a function rule to represent the total cost of producing x stuffed animals as a function of the number of hours spent stitching.

Answer

12 An online music streaming service charges a monthly fee of $10 plus $3 for every song downloaded. Write a function to represent the total cost of downloading x songs for a month.

Answer

13 A taxi service charges $3 as a base fare plus $1.50 for every mile traveled. Write a function rule to represent the total fare for a taxi ride of x miles.

Answer

14 A phone plan offers unlimited texting for a base fee of $20 plus $5 for every gigabyte of data used. Write a function rule to represent the total cost of the phone plan if x gigabytes of data are used in a month.

Answer

15 A company manufactures custom t-shirts. The cost to produce each t-shirt is $8 for materials plus $4.25 for every hour spent on printing. Write a function rule to represent the total cost of producing x t-shirts as a function of the number of hours spent printing.

Answer

Answers

Question number	Question	Answers	Standard
1	Given the function rule $f(x) = 3x + 2$, what is the output when the input is 4?	$f(4) = 14$	8.F.A.1
2	If a function machine triples the input and then subtracts 5, what is the output when the input is 7?	$f(7) = 16$	8.F.A.1
3	In a function machine, if the input, x, is doubled and then divided by 4, and the output, y, is 1, what was the original input?	Input, $x = 2$	8.F.A.1
4	If a function machine rule is $f(x) = x^2 - 1$, what is the output when the input is 3?	$f(3) = 8$	8.F.A.1
5	A function machine multiplies the input, x, by 2, and then adds 3. If the output ,y, is 11, what was the original input?	input, $x = 4$	8.F.A.1
6	Given the function rule $f(x) = \frac{1}{2}x - 6$, what is the output when the input is 10?	$f(10) = -1$	8.F.A.1
7	If a function rule is $f(x) = -3x - 2$, what is the output when the input is 9?	$f(9) = -29$	8.F.A.1

Question number	Question	Answers	Standard
8	In a function machine, if the input is halved and then multiplied by 5, and the output is 15, what was the original input?	The original input is 6. $f(6)$	8.F.A.1
9	A function machine subtracts 15 from the input. If the output is 49, what was the original input?	The original input is 64. $f(64)$	8.F.A.1
10	Given the function machine rule $f(x) = \frac{3}{x}$, what is the output when the input is 2?	$f(2) = \frac{3}{2} = 1\frac{1}{2}$	8.F.A.1
11	A toy factory produces stuffed animals. The cost to produce each stuffed animal is $5 plus $2 for every hour spent on stitching. Write a function rule to represent the total cost of producing x stuffed animals as a function of the number of hours spent stitching.	$f(x) = 2x + 5$	8.F.A.1
12	An online music streaming service charges a monthly fee of $10 plus $3 for every song downloaded. Write a function to represent the total cost of downloading x songs for a month.	$f(x) = 3x + 10$	8.F.A.1
13	A taxi service charges $3 as a base fare plus $1.50 for every mile traveled. Write a function rule to represent the total fare for a taxi ride of x miles.	$f(x) = 1.50x + 3$	8.F.A.1

Question number	Question	Answers	Standard
14	A phone plan offers unlimited texting for a base fee of $20 plus $5 for every gigabyte of data used. Write a function rule to represent the total cost of the phone plan if x gigabytes of data are used in a month.	$f(x) = 5x + 20$	8.F.A.1
15	A company manufactures custom t-shirts. The cost to produce each t-shirt is $8 for materials plus $4.25 for every hour spent on printing. Write a function rule to represent the total cost of producing x t-shirts as a function of the number of hours spent printing.	$f(x) = 4.25x + 8$	8.F.A.1

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