Flow diagrams and functions

Free Extra Maths Class · Grade 7

Name: _____

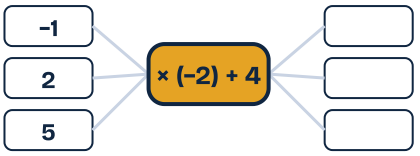
Remember: y = ax + b: a is the jump in y, b is y when x = 0. Working backwards: inverse operations in reverse order.

1. Complete the flow diagram.



Answer: _____

2. Complete the flow diagram.



Answer: _____

3. Complete the table for y = 2x – 3.

x	–1	0	1	2	3
y					

Answer: _____

4. Find the formula for the table.

x	1	2	3	4
y	4	7	10	13

Answer: _____

5. Find the formula for the table.

x	0	1	2	3
y	5	3	1	–1

Answer: _____

6. y = 4x – 7. Calculate y when x = –2.

Answer: _____

7. The rule is × 5 – 3 and the output is 32. What was the input?

Answer: _____

8. The rule is × 3 + 8 and the output is –1. What was the input?

Answer: _____

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9. Write as a formula: multiply x by 6 and then subtract 2.

Answer: _____

10. A taxi charges R12 plus R7 per kilometre. Write a formula for the cost (y) for x km, and calculate the cost for 9 km.

Answer: _____

11. A candle is 24 cm long and burns 3 cm shorter every hour: y = 24 – 3x. **a)** How long is it after 5 hours? **b)** After how many hours is it finished?

Answer: _____

12. y = 5x + 2. **a)** Calculate y when x = 10. **b)** Calculate x when y = 47.

Answer: _____

13. What is the rule in the flow diagram?



Answer: _____

14. Does the point (3; 11) lie on the graph of y = 3x + 2? Show your work.

Answer: _____

15. Matches make squares in a row: 1 square uses 4, 2 squares 7, 3 squares 10. Write a formula for n squares and work out how many matches 20 squares use.

Answer: _____

I got _____ out of 15 ☆ ☆ ☆

Memo

Flow diagrams and functions

Other correct methods are also right.

1. **−5; 1; 10**
−2 × 3 + 1 = −5; 0 × 3 + 1 = 1; 3 × 3 + 1 = 10

2. **6; 0; −6**
−1 × (−2) + 4 = 6; 2 × (−2) + 4 = 0; 5 × (−2) + 4 = −6

3. **−5; −3; −1; 1; 3**
e.g. x = −1: 2 × (−1) − 3 = −5

4. **y = 3x + 1**
Jump of 3: 3x. 3 × 1 = 3; 4 − 3 = 1

5. **y = −2x + 5**
y gets 2 smaller every time: −2x. At x = 0, y = 5.

6. **y = −15**
4 × (−2) − 7 = −8 − 7 = −15

7. **7**
Back: 32 + 3 = 35; 35 ÷ 5 = 7

8. **−3**
Back: −1 − 8 = −9; −9 ÷ 3 = −3

9. **y = 6x − 2**

10. **y = 7x + 12; R75**
7 × 9 + 12 = 63 + 12 = 75

11. **a) 9 cm b) 8 hours**
a) 24 − 15 = 9 b) 24 ÷ 3 = 8

12. **a) 52 b) 9**
a) 50 + 2 = 52 b) 47 − 2 = 45; 45 ÷ 5 = 9

13. **× 4 + 5**
Outputs jump by 4: × 4. 1 × 4 = 4; 9 − 4 = 5

14. **Yes**
3 × 3 + 2 = 11 ✓

15. **y = 3n + 1; 61**
Jump of 3: 3n. 3 × 1 = 3; 4 − 3 = 1. 3 × 20 + 1 = 61