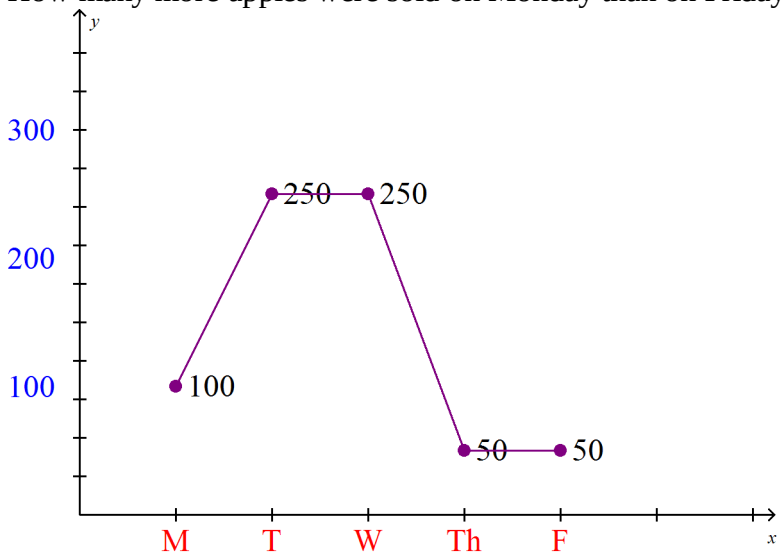
MULTIPLE CHOICE

1. How many more apples were sold on Monday than on Friday?



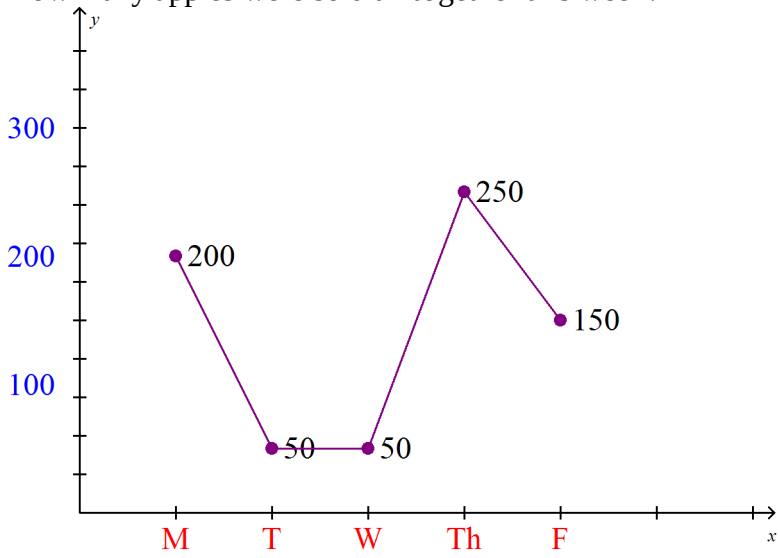
a. 50
b. 200
c. 100
d. 150

ANS: A
Find Monday(M) and Friday(F) on x-axis. Then find their values on y-axis. You need to subtract the F-value from the M-value.

	Feedback
A	Correct!
B	Are you looking at the correct days?
C	You are off by 50.
D	You are guessing.

PTS: 1 DIF: Grade 5
REF: 5AF.1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
OBJ: 5AF.1.1 Students use information taken from a graph or equation to answer questions about a problem situation. TOP: Algebra and Functions MSC: LFS-448

2. How many apples were sold all together this week?



a. 700
b. 750
c. 550
d. 600

ANS: A
Find the value (number of sold apples) for each day. Then find their sum

	Feedback
A	Correct!
B	You are off by 50.
C	You have calculated incorrectly. Check your addition.
D	You are off by 100.

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3. A number y is twelve times greater than three added to a number x. Write an equation for y in terms of x.

a. $y = 12(x + 3)$
b. $y = 3(x + 12)$
c. $y = 12x + 3$
d. $y = 12 + (x + 3)$

ANS: A

"three added to a number x" means $x + 3$. Put this in parenthesis: $(x + 3)$.

"twelve times greater" means "multiply by 12".

We get $y = 12(x + 3)$.

	Feedback
A	Correct!
B	You changed the places of 3 and 12.
C	You forgot to put parenthesis: $(x + 3)$
D	"twelve times greater" means "multiply by 12".

PTS: 1 DIF: Grade 5
REF: 5AF.1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
OBJ: 5AF.1.2 Students use a letter to represent an unknown number; write and evaluate simple algebraic expressions in one variable by substitution. TOP: Algebra and Functions
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4. $x = 3(p - 7)$, what is x if $p = 8$?

a. 3
b. 17
c. 5
d. 21

ANS: A

We substitute $p = 8$ into the equation $x = 3(p - 7)$ and solve for x.

Since this is an equation = sentence, we write every step on a new line!

$x = 3(p - 7)$

$x = 3(8 - 7)$

$x = 3 \cdot 1$

$x = 3$

	Feedback
A	Correct!
B	You need to do the operation in the parenthesis first or use the distributive rule.
C	You have calculated incorrectly. Check your addition and multiplication.
D	You are guessing.

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5. $q = 7(d + 2)$, what is q if $d = 2$?

a. 28
b. 16
c. 26
d. 14

ANS: A

We substitute $d = 2$ into the equation $q = 7(d + 2)$ and solve for q.

Since this is an equation = sentence, we write every step on a new line!

$q = 7(d + 2)$

$q = 7(2 + 2)$

$q = 7 \cdot 4$

$q = 28$

	Feedback
A	Correct!
B	You need to do the operation in the parenthesis first or use the distributive rule.
C	You have calculated incorrectly. Check your addition and multiplication.
D	You are guessing.

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6. Simplify the expression $y - 3 + 5$

a. $y + 2$
b. $y = 2$
c. $y - 2$
d. $y - 8$

ANS: A

Since we are simplifying an **expression**, we write a "snake" of equal signs.

Never solve an expression!

Using the commutative rule of addition, we have:

$y - 3 + 5 = y + 5 - 3 = y + 2$

	Feedback
A	Correct!
B	**This is an expression - there is no equals sign so you cannot solve!**
C	Do not change the sign in the second term since $-3 + 5 = 2$
D	There is no "distribution". We just have: $-3 + 5 = 2$.

PTS: 1 DIF: Grade 5
REF: 5AF.1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
OBJ: 5AF.1.3 Students know and use the distributive property in equations and expressions
TOP: Algebra and Functions MSC: LFS-448

7. Simplify the expression $y - 5 \cdot 3$

a. $y - 15$
b. $y = 15$
c. $y + 15$
d. $5y - 3$

ANS: A

Since we are simplifying an **expression**, we write a "snake" of equal signs.

Never solve an expression!

$y - 5 \cdot 3 = y - 15$

	Feedback
A	Correct!
B	**This is an expression - there is no equals sign so you cannot solve!**
C	Do not change the sign in the second term since $5 \cdot (-3) = -15$
D	There is no "distribution". We just have: $5 \cdot 3 = 15$.

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8. Simplify the expression $2(3y - 4)$

a. $6y - 8$
c. $6y + 8$
b. $y = \frac{4}{3}$
d. $6y - 4$

ANS: A
Since we are simplifying an **expression**, we write a "snake" of equal signs.
$2(3y - 4) = 2 \cdot 3y - 2 \cdot 4 = 6y - 8$

	Feedback
A	Correct!
B	**This is an expression - there is nothing to solve for!**
C	Do not change the sign in the second term since $2 \cdot (-4) = -8$
D	You must use the distributive rule.

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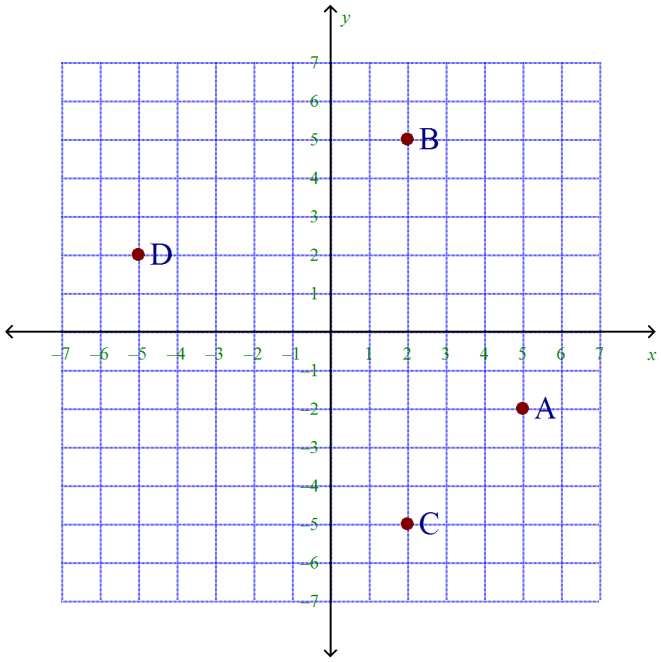
9. 5AF1.1. 4a. Which letter is the plot of the point (2,–5) in the graph below?



a. A
b. B
c. C
d. D

ANS: C

For the point (2,–5) from (0,0) we move 2 marks to the right and then 5 down.
So the letter C is the plot of the point.

	Feedback
A	This is totally wrong.
B	One or more of your coordinates is in the wrong direction.
C	Correct!
D	You have reversed the coordinates.

PTS: 1 DIF: Grade 5
REF: 5AF.1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
OBJ: 5AF1.4 Students identify and graph ordered pairs in the four quadrants of the coordinate plane.
TOP: Algebra and Functions MSC: LFS-448

10. 5AF1.1. 4a. At a parking lot, every car is charged $5. This means that the equation for the total charges y if x cars are parked in the lot is: $y = 5x$

Complete the following table.

x	y
3	
4	
5	

What are the coordinates of the point (x,y) corresponding to the time when there are **five** cars in the parking lot?

a. (25,5)
b. (1,5)
c. (5,25)
d. (4,20)

ANS: C

We complete the table by multiplying each x value by *5*.

x	$y = 5x$
3	15
4	20
5	25

We know: x=number of cars and there are **five** cars in the parking lot so $x = 5$.

From the table we see that for $x = 5$, $y = 25$.

So, the coordinates of the point are: (5,25).

	Feedback
A	You have reversed the order of the coordinates; x=number of cars.
B	No, this is the coordinates of the points corresponding to when the total charges is five.
C	Correct!
D	This is the point for when there are **4** cars in the parking lot.

PTS: 1 DIF: Grade 5
REF: 5AF.1.0 Students use variables in simple expressions, compute the value of the expression for specific values of the variable, and plot and interpret the results.
OBJ: 5AF1.5 Students solve problems involving linear functions with integer values; write the equation; and graph the resulting ordered pairs of integers on a grid.
TOP: Algebra and Functions MSC: LFS-448

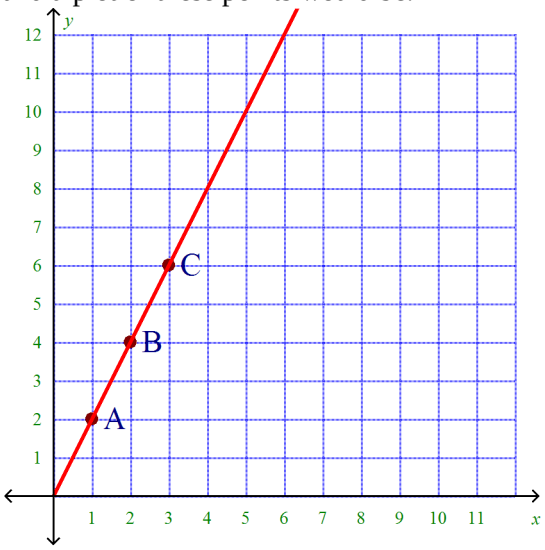
11. 5AF1.1. 4a. At a concert, the entrance fee is $2.

Let x persons enter the concert and y be the total charges.

Then a table of values for this function would be:

x	y
1	2
2	4
3	6

and a plot of these points would be:



Write an equation for the total charges y if x persons enter the concert.

a. $2y = x$
b. $y = 2$
c. (1,2)
d. $y = 2x$

ANS: D

Look at the table or the graph. In each case the y-value is 2 *times* the x-value.

So $y = 2x$

	Feedback
A	No, the y-value is 2 *times* the x-value.
B	You must have x in your equation.
C	This is just a point satisfying the equation we need.
D	Correct!

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