STAAR Session #6 Equations and Proportional Relationships

Wednesday, March 19, 2013

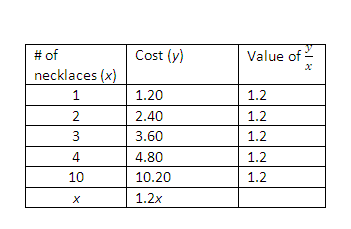
A proportional relationship can be identified by looking at 3 things:

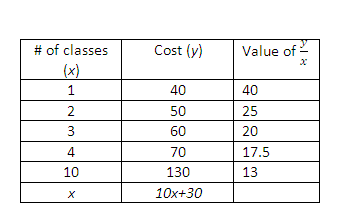
* The table has a constant rate of change AND a constant of proportionality (will reduce to the same fraction).
* The graph of the line goes through the origin.
* The equation fits the equation *y=kx* (no +/-).

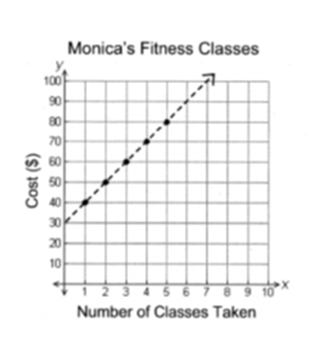
**Proportional Relationship Non Proportional Relationship**

Monica’s health club charges $30 per month for a membership fee and $10 per fitness class. How many classes can Monica take in one month for $100.

A candy necklace costs $1.20. Jaden wants to buy candy necklaces for all of her friends. She only has $15 to spend. How many necklaces can Jaden buy?

* 





There is NOT a constant of proportionality.

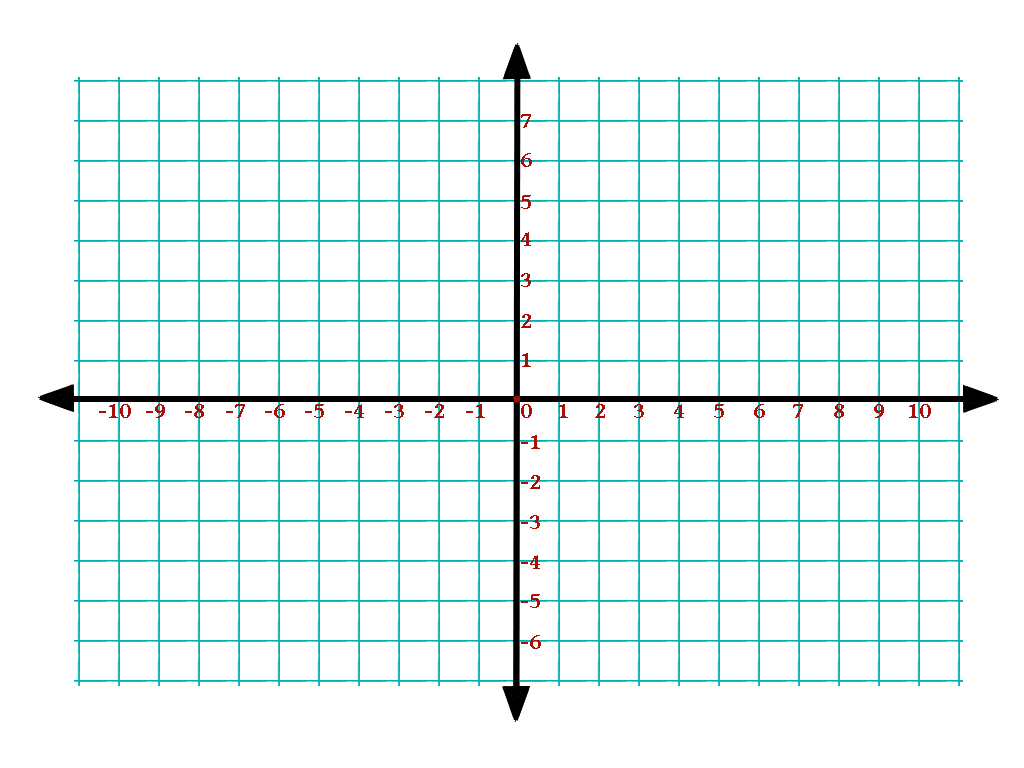
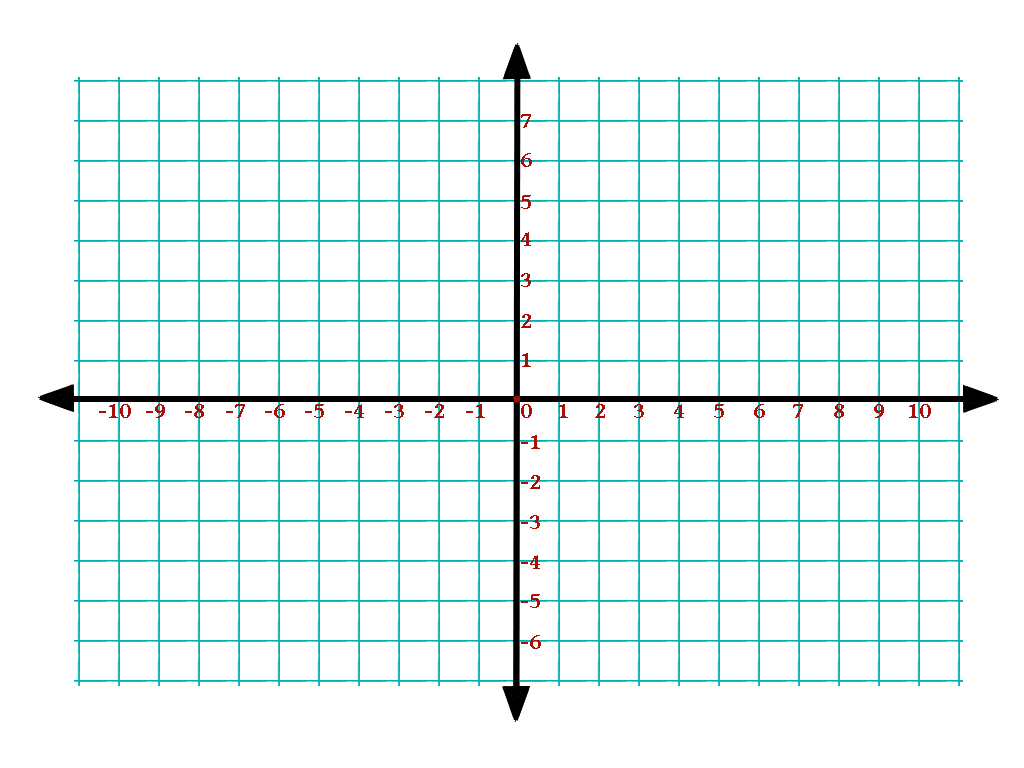
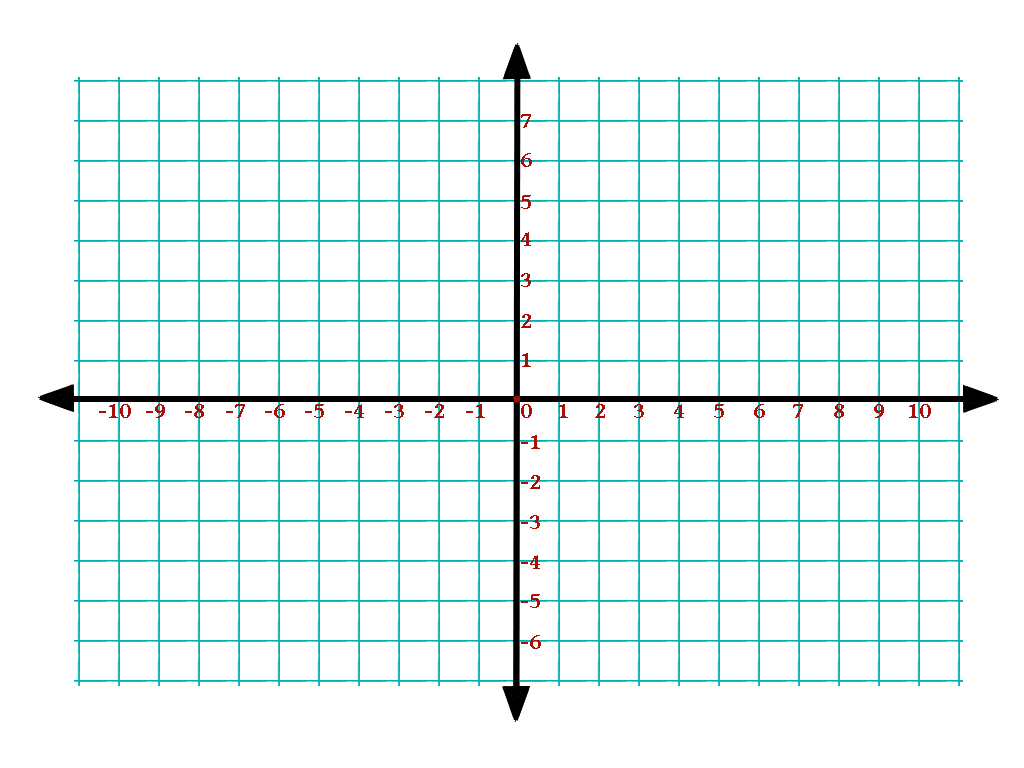
There is a constant rate of change of $10.00 per class but the equation does not fit the form *y=kx.*

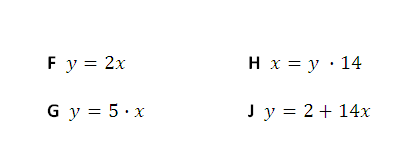
There is a constant of proportionality of 1.2 .

There is a constant rate of change of $1.20 and the equation fits the form *y=kx.*

Proportional Graphs go through the origin (0,0).

Non-Proportional graphs do not.

Which of the following graphs shows a non-proportional relationship?

Which of the following equations does **not** represent a proportional relationship?

**F** **H**

**G**  **J**

Which table shows a proportional relationship?

|  |  |
| --- | --- |
| Number of Apples | Total Cost |
| 5 | $2.00 |
| 10 | $4.00 |
| 15 | $6.00 |
| 30 | $10.00 |

|  |  |
| --- | --- |
| Number of Apples | Total Cost |
| 5 | $2.50 |
| 10 | $5.00 |
| 15 | $7.50 |
| 30 | $15.00 |

|  |  |
| --- | --- |
| Number of Apples | Total Cost |
| 5 | $1.75 |
| 10 | $3.50 |
| 15 | $7.75 |
| 30 | $15.00 |

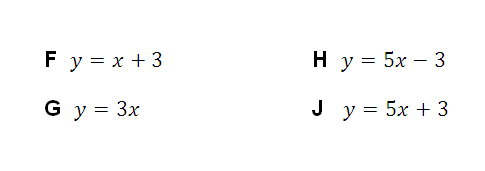
|  |  |
| --- | --- |
| Number of Apples | Total Cost |
| 5 | $1.25 |
| 10 | $2.50 |
| 15 | $5.00 |
| 30 | $15.50 |

**When moving between tables, graphs and equations remember: plug it in, plug it in!**

The table below shows a relationship between and .

|  |  |
| --- | --- |
|  |  |
| 0 | 3 |
| 1 | 8 |
| 3 | 18 |
| 4 | 23 |
| 6 | 33 |

Plug in the x values from the table to solve for y.

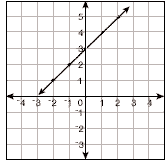
Which equation best represents this relationship?

**F** **H**

**G** **J**

Which of these equations represents the graph below?

Make a table with points from the graph and compare to the equations OR plug in values 0, 1, 2 … into each equation to see if they are on the line.

**A** 

**B** 

**C**  

**D** 

The cost to lay sod is given by the equation where is the total cost, and is the area of the yard. Which table contains values that fit the equation?

Plug in values from the tables into the equation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *A* | 10 | 20 | 30 | 40 |
| *c* | 0.09 | 0.18 | 0.27 | 0.36 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *A* | 10 | 20 | 30 | 40 |
| *c* | 0.90 | 1.80 | 2.70 | 3.60 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *A* | 10 | 20 | 30 | 40 |
| *c* | 9.00 | 18.00 | 27.00 | 36.00 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| *A* | 10 | 20 | 30 | 40 |
| *c* | 90 | 180 | 270 | 360 |

Sophia joined Netflix and she can find her monthly charges using the expression 3n + 5. Which list will show Sophia’s monthly charges depending on the number of movies rented?

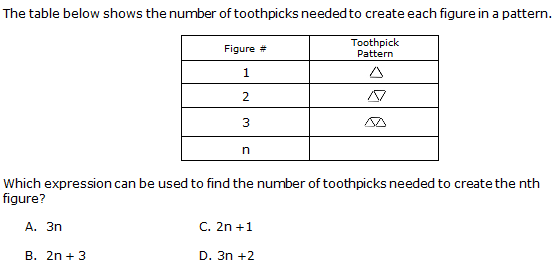
Remember: Put the term numbers over the list.

Plug the term numbers into the given equation.

1, 2, 3, 4, 5

1. 5, 10, 15, 20, 25,… C. 3, 9, 12, 15, 18,…

B. 3, 8, 13, 18, 23,… D. 8, 11, 14, 17, 20,…

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