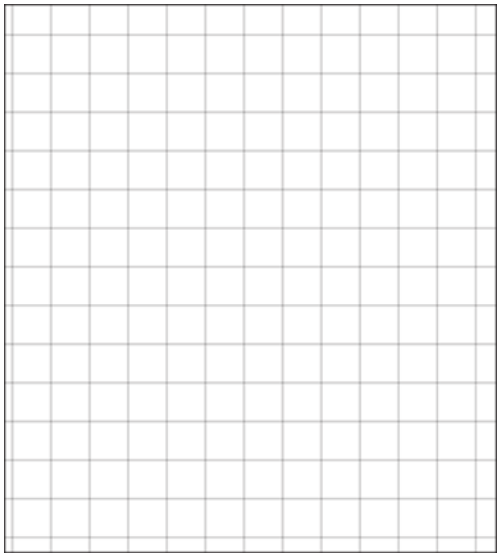
M10 – Graph the Story: Christmas Edition Name:_____

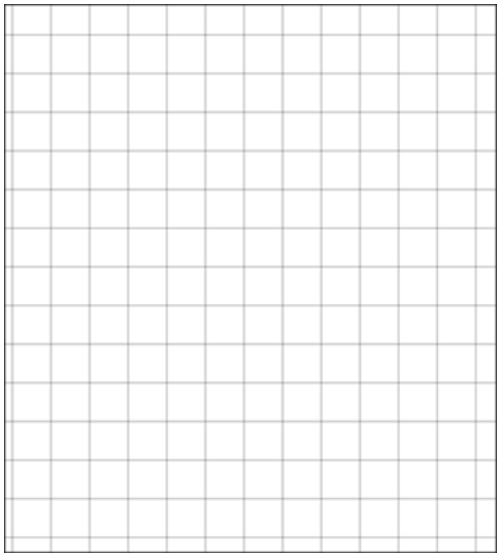
Santa's elves have been working hard all year to make presents for all the good girls and boys. They start making gifts for Christmas on January 1st and continue making gifts as late as Christmas Eve.

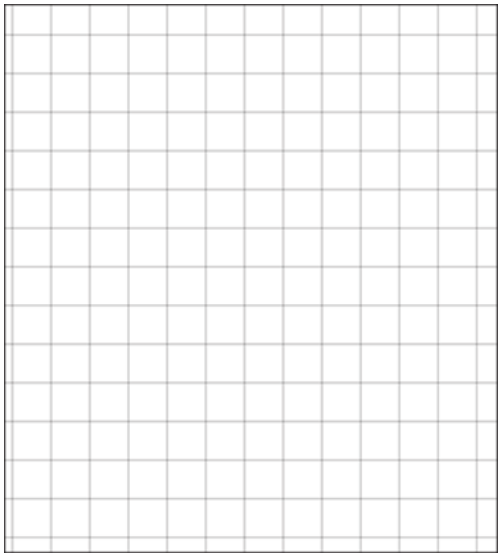
1. In the months of January and February the elves make an average of 15 presents a day. In March, April, and May the elves pick up the pace and make 20 presents a day. In June the elves all take a vacation and do not make any presents. In July and August the elves slowly get back to work and make an average of 10 presents a day for both months. In September, sensing Christmas' arrival they make 20 presents a day. In October and November they make 25 presents a day. In December they make an average of 20 presents a day.
    a. Graph the story of how many presents the elves make throughout the year. Title the graph and both variables.
    b. How many presents do the elves make in total?



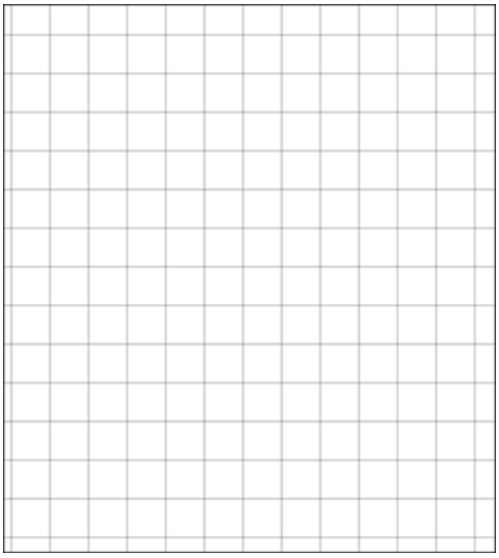
The elves make _____ gifts throughout the year.

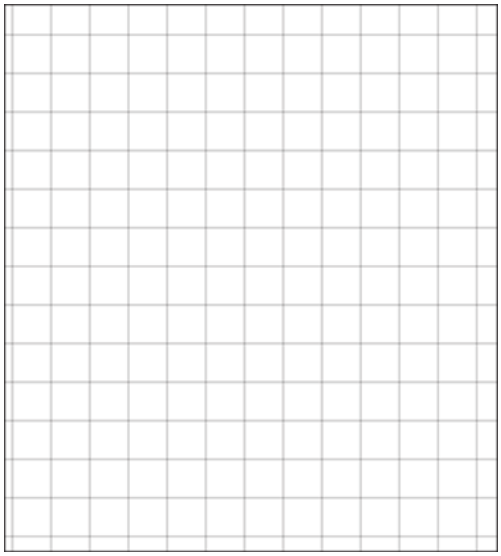
2. Santa's reindeers are playing tag. Dasher is "it" and chases Dancer. Dancer runs at a constant speed of 5 m/s for 10 seconds then changes direction and accelerates to 7 m/s. After chasing her at this speed for 7 seconds Dasher switches his attention to another reindeer and Dancer slows down to a complete stop over the next 3 seconds and rests for 5 seconds before running off again.
    a. Graph Dancer's speed over the time she played tag in the story.
    b. What might Dasher's speed vs time graph look like? Graph it.





3. On Christmas Eve night it's almost time to set off. The presents are all made, but the elves are still hard at work loading Santa's sleigh. The elves make 5 trips from their workshop to Santa's sleigh 150 m away from their shop. It takes the elves 2 minutes to make the trip to Santa's sleigh loaded with the presents and only 30 seconds to get back to the shop, and another 15 seconds in the shop gathering gifts before they set off again to his sleigh.
    a. Graph their distance travelled vs. time
    b. How long does it take the elves to load the sleigh?
    c. Graph their distance from the shop (displacement) vs time
    d. How are these graphs different?





It takes the elves _____ _____ to load the sleigh

These two graphs are different because...

4. Write the story of Santa's Trip from the graph below. Label each axis.