

Qualitative Graphs - Graphs that represent QUALITY a situation over time.

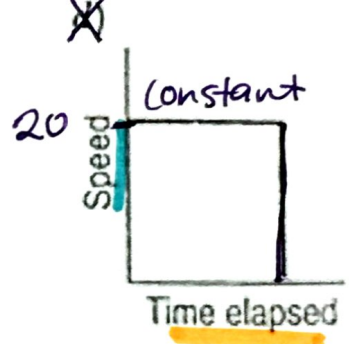
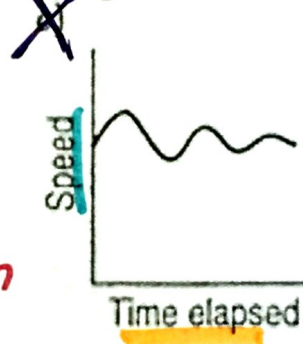
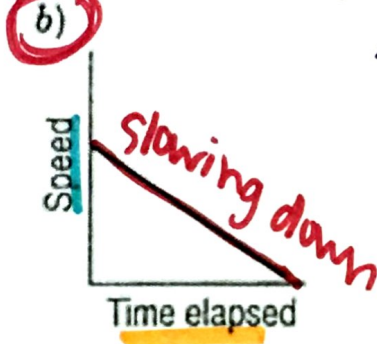
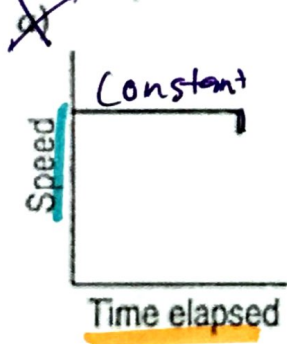
• increasing ↗ decreasing ↘ constant →

• Must pass the V.L.T. *llll*

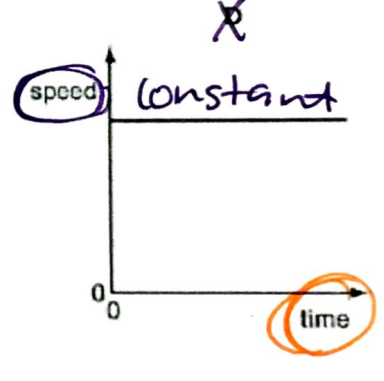
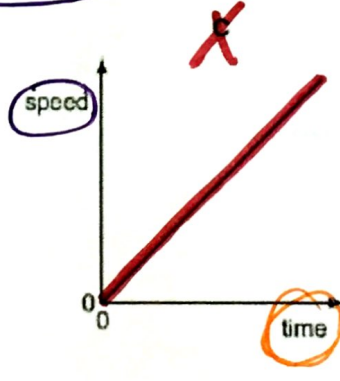
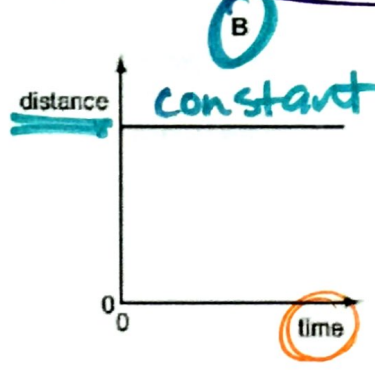
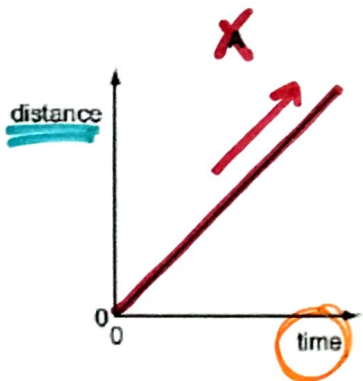
Indicate which graph matches the statement.

Ex. 1:

1. A train pulls into a station and lets off its passengers.



2. Which graph represents an object at rest?

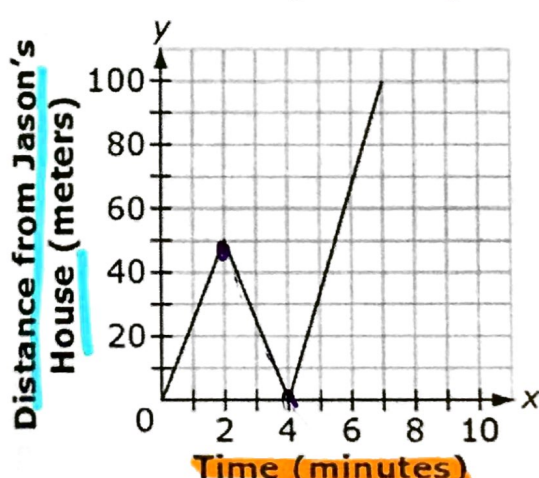
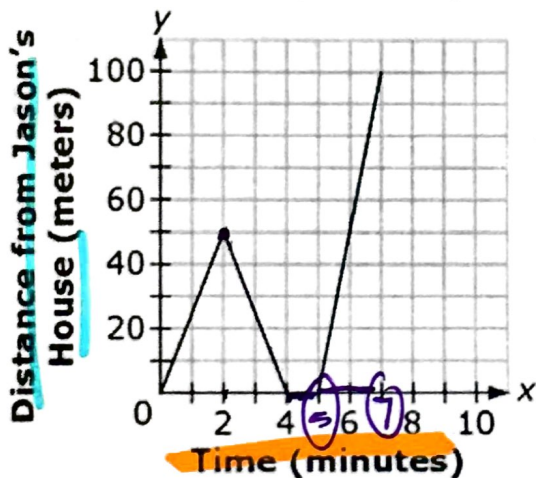
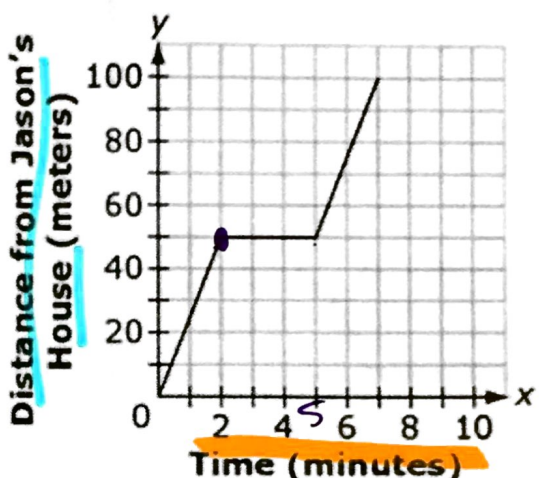
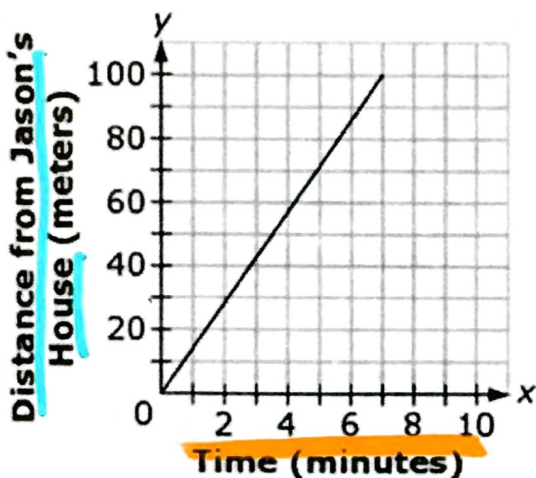


Ex. 3

The school is 100 meters from Jason's house. The following describes his most recent trip:

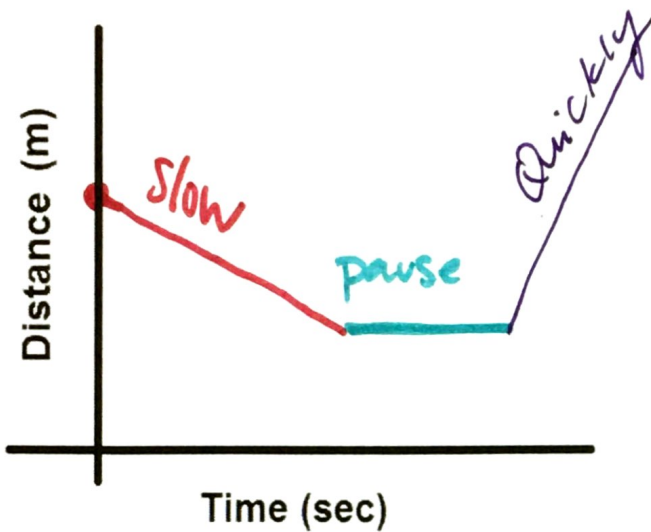
- He walked 50 meters toward school in 2 minutes.
- He realized that he left a book at home. He turned around and walked home at the same speed.
- He spent 1 minute looking for his book.
- He walked all the way to school at twice his original speed.

Which graph represents Jason's trip?

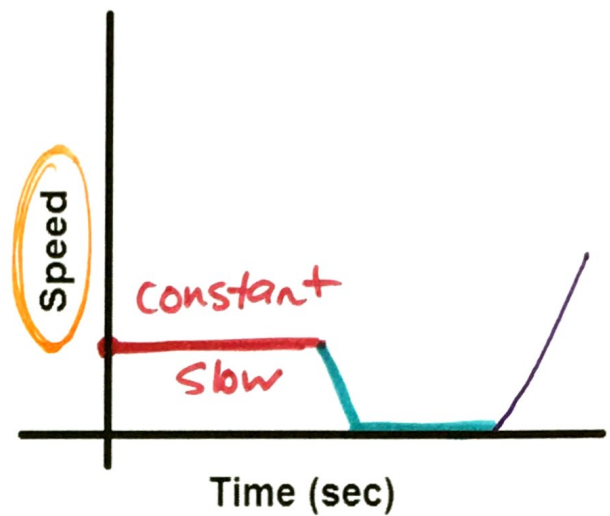


Sketch the following situations:

Ex. 4 A person is slowly moving towards the ranger station, paused to look at the view and then quickly moves away from the station



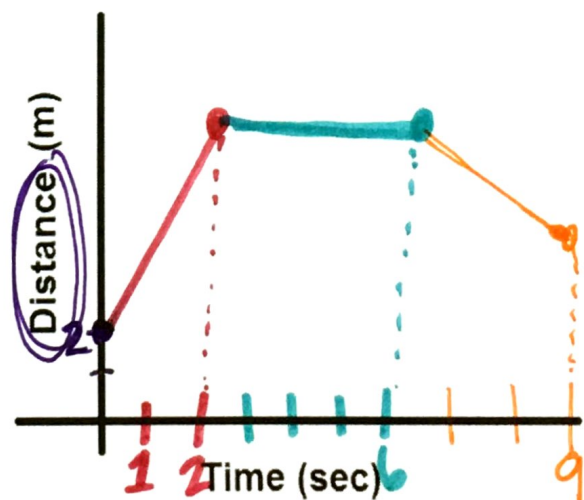
Ex. 5 A person is slowly moving towards the ranger station, paused to look at the view and then quickly moves away from the station



Ex. 6 A person starts 1 m from the ranger station, starts walking slowly away and then runs away.

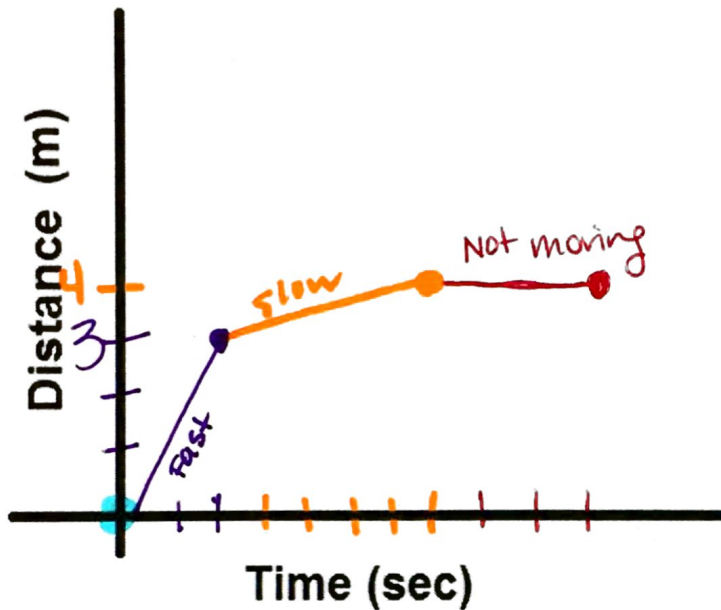


Ex. 7 A person starts 2 m from the ranger station, runs quickly away for 2 seconds, stops for 4 seconds, walks slowly toward it for 3 secs.

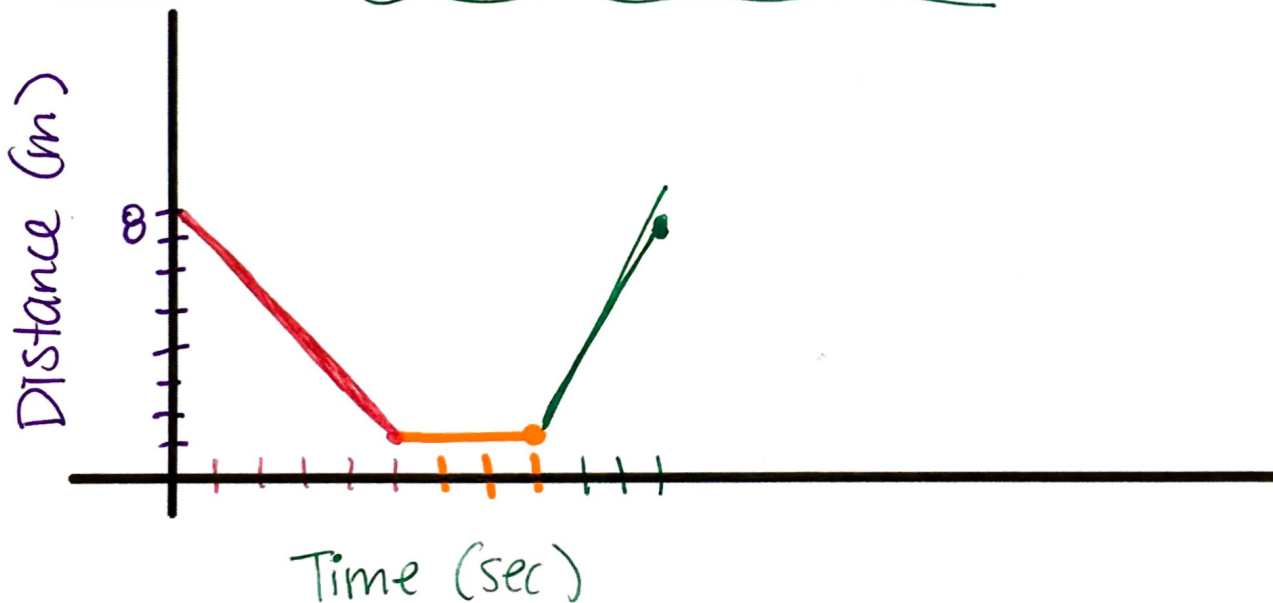


**Ex. 8** Draw a graph that matches the following description:

A person is starting at the ranger station and walks quickly away for 3 m, then walks slowly away for 1 m, then stops for 3 seconds.



**Ex. 9** A student stands 8 m from the ranger station and walks at a constant rate towards the station for 5 seconds. Then they stand still for 3 seconds, and run back to the starting position.



For each situation do the following, assuming that all situations below are linear

- a) create a table to organize the information
- b) find the equation that would represent the situation
- c) interpret the slope *-what does it mean?*
- d) interpret the y-intercept

Ex. 10 Marshall had an old notebook from last year. He decided to use it to take notes during health class. After 5 health class periods the notebook had 75 pages full, and after 7 the notebook had 83 pages full.

a)

X: # of class periods	y: # of full pages
0	55
1	59
2	63
3	67
4	71
5	75
6	79
7	83

*Handwritten notes: x2 (circled around x=6,7), +4 (circled around y=75,79,83), +8 (circled around y=79,83)*

b)  $y = 4x + 55$

c) SLOPE: Marshall fills 4 pages every class period.

d) y-int: 55 full pages when Marshall started.

Ex. 11 Bobby showed up to work at the bakery and his boss told him to take over for the person making bread dough. After 2 hours of Bobby working there was a total of 98 lbs of dough, and at the end of his 8 hour shift there was 170 lbs of dough ready to bake.

a)

X: # of hours	y: lbs of dough
0	74
1	86
2	98
3	110
4	122
5	134
6	146
7	158
8	170

*Handwritten notes: +12 (circled around y=86,98,110,122,134,146,158), +6 (circled around x=6,7), +72 (circled around y=158,170)*

b)  $y = 12x + 74$

c) SLOPE: 12 lbs of dough per hour.

d) y-int: There were 74 lbs of dough when he started.

**Ex. 12** To have a kid's birthday party at All Star Fun Center there is a room rental fee and a charge for each additional person attending. At Sarah's birthday party there were 10 additional people and the cost was \$139.50. The total cost was \$184.25 when Samantha had 15 additional people attend her birthday party.

a)

x: # of people	y: cost \$
0	50
5	94.75
10	139.50
15	184.25

Annotations: A blue oval highlights (0, 50). A blue arrow labeled '-5' points from x=0 to x=5. A blue arrow labeled '+5' points from x=10 to x=15. A blue bracket labeled '-44.75' spans from y=50 to y=94.75. A blue bracket labeled '+44.75' spans from y=94.75 to y=139.50.

$$(b) y = 8.95x + 50$$

(c) SLOPE:  $\frac{44.75}{5} = 8.95$   
It costs \$8.95 for each additional person.

(d) y-int: 50.  
The room rental fee is \$50.

**Ex. 13** Carson loves to pop bubble wrap (the kind that is used when shipping fragile things in boxes) one bubble at a time. After 4 minutes of popping the bubbles there were 546 bubbles still full of air. When he reached 10 minutes there were just 180 full bubbles remaining.

(a)

x: # of min.	y: # of full bubbles
0	790
1	729
2	668
3	607
4	546
5	
6	
7	
8	
9	
10	180

Annotations: Red arrows point from (0, 790) to (1, 729), (1, 729) to (2, 668), and (2, 668) to (3, 607), with '+61' written next to each. A blue arrow labeled '+6' points from x=4 to x=10. A blue bracket labeled '-366' spans from y=546 to y=180.

$$(b) y = -61x + 790$$

(c) SLOPE: He pops 61 bubbles every min.

(d) y-int: 790 bubbles to pop when he started.