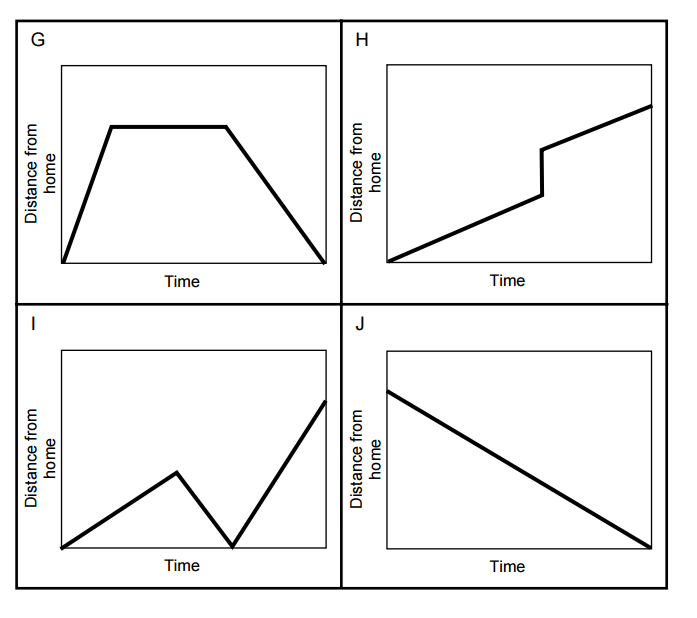
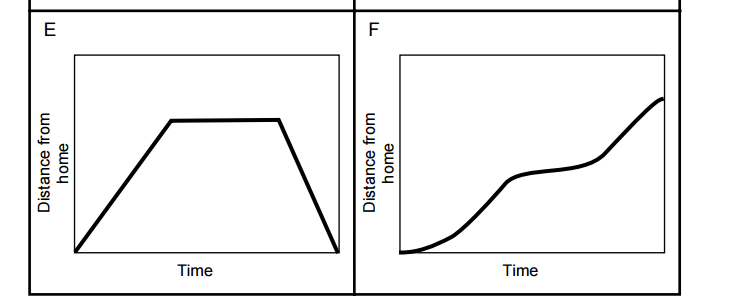
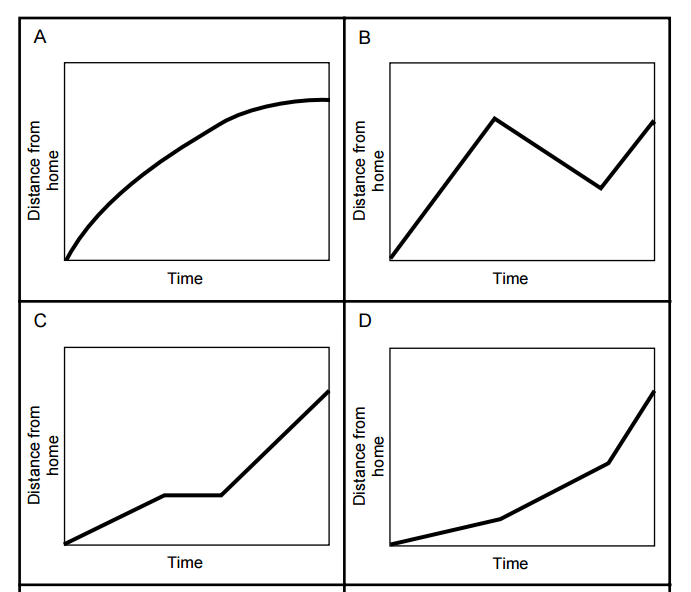
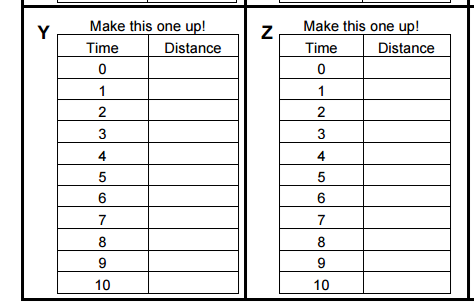
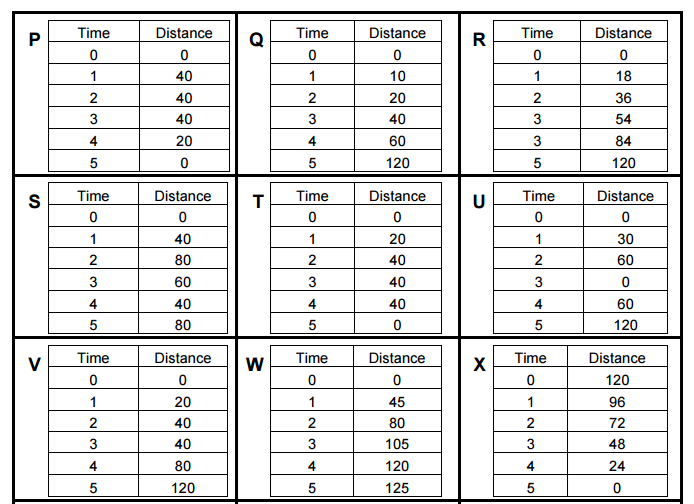
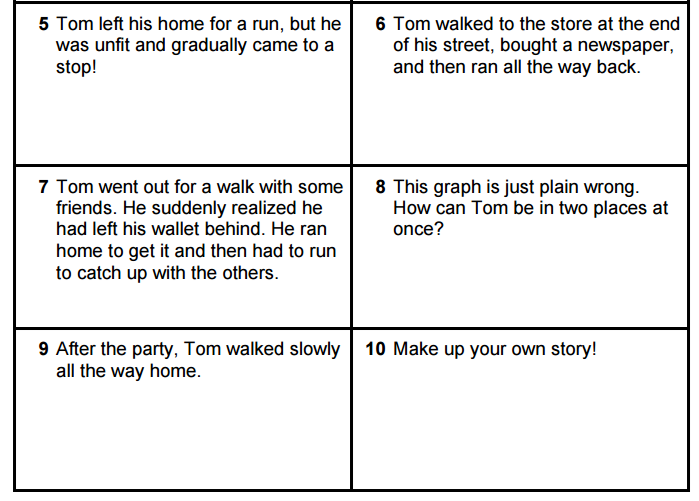
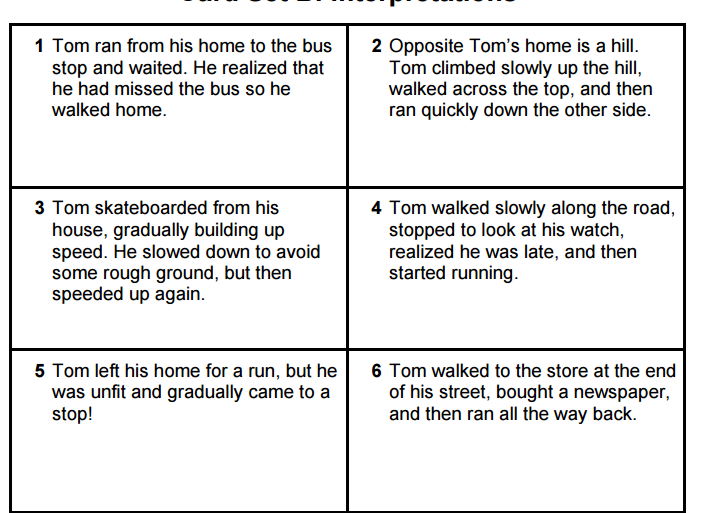
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **GRADE: 7**  **SUBJECT: MATHEMATICS**  **TERM THREE**  **EXAMPLE FORMAL ASSESSMENT TASK (FAT) – Project**  Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_    Class: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  School: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Teacher: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   |  |  |  |  | | --- | --- | --- | --- | | **FAT** | **Activity/Form** | **Learner’s marks** | **Learner’s %** | | 3.1 | PROJECT |  |  | | **TOTAL** | |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **MATHEMATICS GRADE 7 FORMAL ASSESSMENT TASK (FAT):**  **PROJECT**  **Total: 50 Marks Time: 3 Weeks** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Instructions:   1. Answer all the questions.  1. Read each question carefully before you start to answer it. 2. Write your name and date. 3. Calculators are allowed. 4. Show calculations as requested on question paper.. 5. The marks allocated are an indication of the number of steps per calculation. 6. Check your answers. 7. You have to complete the project in three weeks’ time. Your teacher will give you a date when you have to submit this task. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  |  | In physics, a graph is “worth a thousand numbers”. A great deal of information can be obtained by looking and interpreting graphs describing motion (displacement, speed, velocity, and acceleration). Every graph tells a story. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| **1.** |  | The graph below shows how the speed of a bus changes during part of a journey. Choose the correct word from the following list to describe the motion during each segment of the graph. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | ***Constant speed standing still decelerating Accelerating*** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | 1.1) | | | | Segment 0-A | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  | 1.2) | | | | Segment A-B | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  | 1.3) | | | | Segment B-C | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  | 1.4) | | | | Segment C-D | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  | 1.5) | | | | Segment D-E | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  | 1.6) | | | | Segment E-F | | | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[6]** |
| 2. |  | The following graph displays distance vs. time. You can compare the relative positions, speeds and displacement as they relate to each other in the following graph. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
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|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.1) |  | Which runner won the race? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.2) |  | What was his time? \_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.3) |  | Which runner started out the fastest? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.4) |  | What was Charlie doing between 8 seconds and 12 seconds? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.5) |  | What does a straight line on this graph tell you? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.6) |  | What does a curved line on this graph tell you? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 2.7) |  | At what distance and time did Bob overtake Charlie? Distance: \_\_\_\_\_\_\_\_\_\_\_ Time: \_\_\_\_\_\_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (2) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[8]** |
| 3. |  | The following graph describes an object traveling. The object starts at 0 seconds and the graph stops tracking the object after 25 seconds. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | Write down the letter when each of the following movements starts. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3.1) |  | The object then again remains stationary for 40 seconds at a distance of 150m. \_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3.2) |  | The object takes 20 seconds to travel 40m. \_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3.3) |  | The object returns to the initial position, taking 40 seconds to travel 150m. \_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3.4) |  | The object remains stationary for another 40 seconds. \_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 3.5) |  | The object travels 110 meters in 60 seconds at a variable speed. \_\_\_\_\_ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[5]** |
| 4. |  | Pedro is going on a bicycle trip. The graph displays the first day of the trip. Use the graph to describe each part of the first day in your own words. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | **BICYCLE TRIP** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | **Total number of kilometres** |  | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 90 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  | ***F*** |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 80 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 70 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  | ***E*** |  | |  |  |  |  |  |  |  |  |
|  |  | 60 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 50 | | | |  | | | |  |  | |  | | |  |  |  | ***C*** |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | | ***D*** |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 40 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | 30 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
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|  |  | 20 | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
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|  |  | 10 | | | |  | | | |  |  | | ***B*** | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  | ***A*** | | | |  | | | |  |  | |  | | |  |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |  |  |  |
|  |  |  | 09:00 | | | | | | | | 10:00 | | | 11:00 | | | | 12:00 | | 13:00 | | 14:00 | | | 15:00 | | 16:00 | | | 17:00 | |  |  |  |  |  |  |
|  |  | **Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 4.1) |  | A to B | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
| 4.2) |  | B to C | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
| 4.3) |  | C to D | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
| 4.4) |  | D to E | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
| 4.5) |  | E to F | | | | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[5]** |
| 5. |  | Draw a graph for the next “story”:  A to B: Somebody walks at a constant speed away from home to a shop.  B to C: The person stays at the shop for a period of time.  C to D: The person starts walking back home – again at a constant speed, but slower than in the first part. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | **Total distance** | | | | | **Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | **[3]** |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 6. |  | Draw a graph for the next “story”:  A to B: Somebody walks at a constant speed away from the shop back home.  B to C: The person stops to talk to a friend for a period of time.  C to D: The person starts walking back home – again at a constant speed, but faster than in the first part. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | **Distance from home**  **Distance from home** | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[3]** |
|  |  |  | |  | | | | **Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | |  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 7. |  | Draw a distance versus time graph of a dog that is tied to a 4 m rope to a pole and walks (at a constant speed) to complete circle. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | **Total distance** | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[1]** |
|  |  |  | |  | | | | **Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | |  | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
| 8. |  | A helicopter left the landing pad at the top of a building and then quickly flew downwards  towards the ground and maintained a 5 meter distance above the ground for a while before it had to fly up above a small hill (twice as high as the building) and land at the bottom of the far side of the hill.  Draw a distance versus time graph that depicts the journey of the helicopter. The distance represents how high the helicopter is above the ground. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | **Distance from ground** | | | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | **Time** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **[4]** |
| 9. |  | Antonio and Juan are in a 4-km bike race. The graph below shows the distance of each racer in km as a function of time (in minutes). Imagine you were watching the race and had to announce it over the radio, write a little story describing the race. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | *Distance in km* | |  | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | *Time (Minutes)* | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
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| 10. |  | Below you will find three different types of cards. Card set A consists of 10 distance versus time graphs. Card set B consists of 10 interpretations and Card set C consists of 10 tables with data. Use a pair of scissors to cut out the cards and glue the three cards that fit together on a separate page. You have to submit the separate pages with all the cards as well. Afterwards you have to complete the table below to show your findings. The first one in the table is done for you as an example. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |  |
|  |  | **Graph** | | | | | | | | | | | | | | **Interpretation** | | | | | | | **Data Table** | | | | | |  | | | | | | | |  |
| 10.1) |  | A | | | | | | | | | | | | | | 5 | | | | | | | W | | | | | | example | | | | | | | |  |
| 10.2) |  | B | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.3) |  | C | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.4) |  | D | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.5) |  | E | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.6) |  | F | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.7) |  | G | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.8) |  | H | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.9) |  | I | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
| 10.10) |  | J | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | (1) |
|  |  |  | | | | | | | | | | | | | |  | | | | | | |  | | | | | |  | | | | | | | | **[9]** |
|  |  | **TOTAL:** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | **50** |

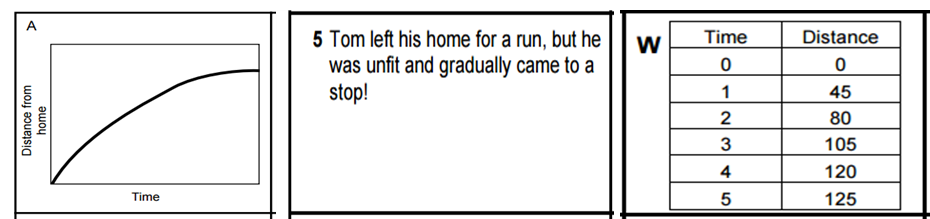
**CARD SET A: DISTANCE–TIME GRAPHS**



**CARD SET B: INTERPRETATIONS**



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**EXAMPLE:**