

# Physics Bell Work, Feb 23 - 27, 2015

Physics: ACT prep, Displacement, Instantaneous  
Velocity, Average Velocity

# Physics, Bell Work, Monday, Feb 23, 2015

**1. How is the ACT science test constructed?** (left side, #1; right side #2)

**40-questions, 35-minutes, scored: 0 – 36. You need 21/40 for TOPS.**

There are three types of passages, followed by questions.

**Data Representation** questions (graphs/data tables) : **38% of the test.**

**Research Summaries** questions (intrepret experiments or summary of results) : **45% of the test.**

**Conflicting Viewpoints** (reading 2 different hypothesis):**17% of the test.**

**2. How can you identify each of the three types of passages?**

**Data Representation passages are always followed by 5 questions.**

**Research Summaries passages are followed by 6 questions.**

**Conflicting Viewpoints are followed by 7 questions.**

There are always: **3 Data Representation passages**

**3 Research Summaries passages**

**1 Conflicting Viewpoints passage**

# Physics Bell Work Tuesday, Feb 24, (2 questions)

## 1. Explain how to take the ACT.

- Write in the test booklet. Circle your answers in the booklet.
- Start by answering the questions that go with the type passages you are best at (either Data Representation, Research Summary, or Conflicting point of view.)
- Then answer those questions in your next best category, and if time permits, answer your worst category questions last.
- When the teacher says five minute left, bubble in your answer document, and start guessing for all answered questions.
- *Do not leave any questions unanswered.*
  - *Guess!!!*

# Physics Bell Work Tuesday, Feb 24,

## 2. Explain an ACT guessing strategy

- The answer sheet looks like this:

Position:	1	2	3	4
	A	B	C	D
	F	G	H	J

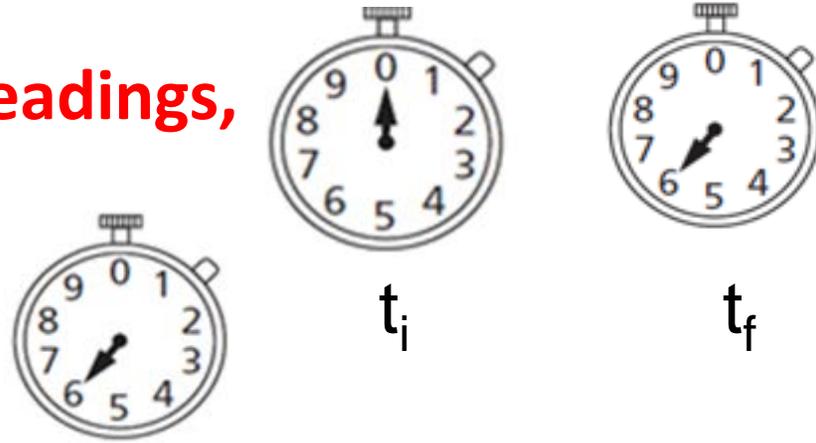
- If you have no idea which is the correct answer or you are out of time, choose one of these “positions” (like B & G, or D & J) and always use those letter pairs for your guess answers.
- If you can use process of elimination to “cross out” one of the four answers, you are not guessing.
  - In this case, go with your best hunch, or use the first answer that you did not eliminate.
  - Example: You know F & J are wrong but unsure about G & H

~~F~~   G   H   ~~J~~   Your answer is G because it is the first answer not crossed off.

# Physics Bell Work, Wednesday, Feb 25

## 1. What is a time interval?

It is the difference between two clock readings, where  $\Delta t = t_f - t_i$



## 2. What is an instant in time?

It is one clock reading at a single time.

Thus, the final time and the initial time are the same and  $\Delta t = 0$

## 3. What is instantaneous velocity?

It is an object's speed at a given time instant (or a single *clock reading*).

## 4. What is the difference between average velocity and instantaneous velocity?

Average velocity is the average velocity over a time interval (2 more clock readings), instantaneous velocity is the velocity at one clock reading (a single instant in time).

# Physics Bell Work, Thursday, Feb 26, '15 (4 Ques.)

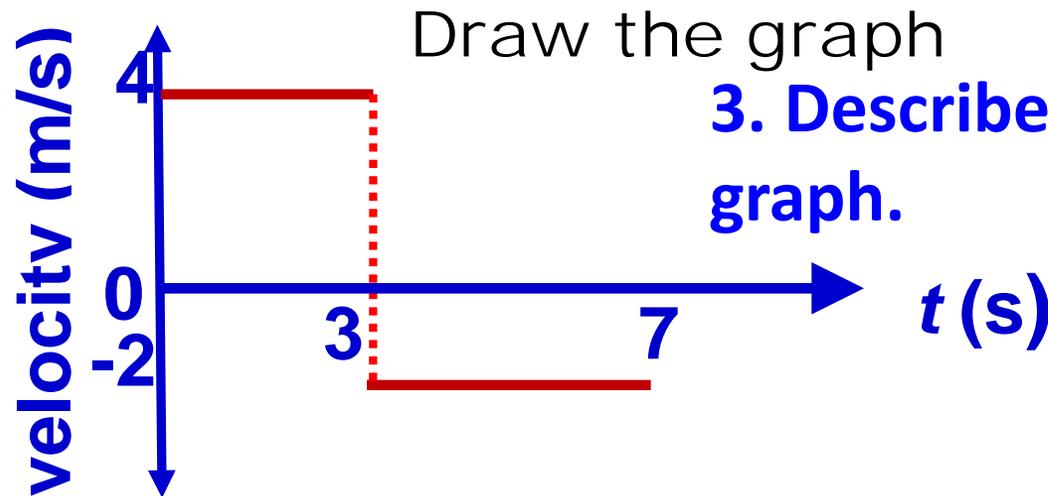
1. The change in an object's position calculated by subtracting the initial position from the final position,  $\Delta x = x_f - x_i$ , is

- a. acceleration      c. displacement  
b. average velocity      d. scalar magnitude

2. State two other ways to determine displacement,  $\Delta x$ .

By using the equation:  $\Delta x = \bar{v} \cdot t$  (or  $\bar{v} \cdot \Delta t$ )

By finding the area under a  $v$  vs.  $t$  graph. (The area between the red & blue lines.)

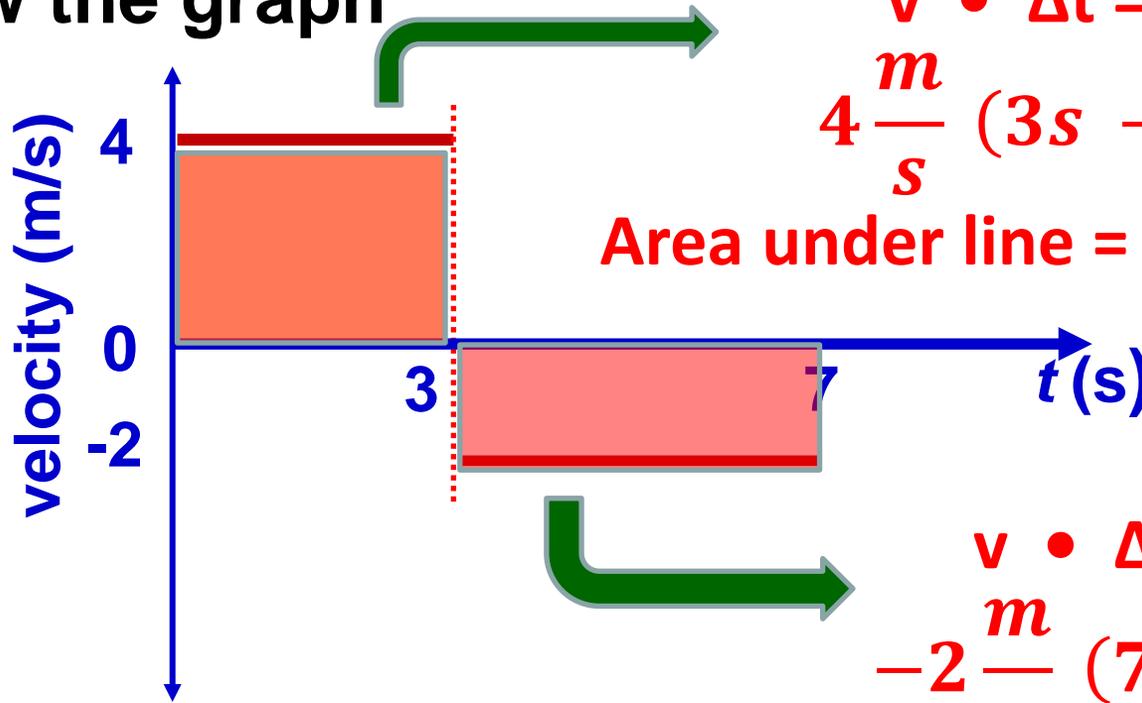


3. Describe the motion shown on this graph.

From 0 – 3 s (or for 3 s), the object moves at 4m/s and then reverses direction from 3 to 7 seconds (or for 4 seconds) and moves at -2 m/s.

# Physics Bell Work Thursday, Feb 26, (1 Ques.)

Draw the graph



$$v \cdot \Delta t = \Delta x$$

$$4 \frac{m}{s} (3s - 0s) = 12m$$

$$\text{Area under line} = \Delta x = 4 \cdot 3 = 12 \text{ m}$$

$$v \cdot \Delta t = \Delta x$$

$$-2 \frac{m}{s} (7s - 3s) = -8m$$

$$\text{Area under line} = \Delta x = -2 \cdot 4 = -8 \text{ m}$$

1. What is the displacement ( $\Delta x$ ) from 0 – 7 seconds?

From 0 s - 3 s,  $\Delta x = 12 \text{ m}$ .

From 3 s - 7 s,  $\Delta x = -8 \text{ m}$ .

From 0 s - 7 s,  $\Delta x = 12 \text{ m} + (-8 \text{ m}) = 4 \text{ m}$