

**Now Pay Attention – You Can Do This (50,000 points) Multiple-Guess-Fill-In-The-Bubbles**

- |     |              |   |
|-----|--------------|---|
| mph | sec/<br>mile | 1.)(a) Theresa needs to drive her car 40. miles in 30. minutes. What is her constant speed?<br><i>The handy chart at left may be useful.</i>  |
| 25  | 144.0        | A = 50. mph B = 60. mph C = 70. mph D = 80. mph   |
| 30  | 120.0        | E = 90. mph F = None of these   |
| 35  | 102.9        | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F                             |
| 40  | 90.0         | (b) Tabitha also drives her car 40. miles in 30. minutes, but going from rest to some final speed at constant acceleration. What is her average speed?  |
| 45  | 80.0         | A = 50. mph B = 60. mph C = 70. mph D = 80. mph   |
| 50  | 72.0         | E = 90. mph F = None of these   |
| 55  | 65.5         | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F                             |
| 60  | 60.0         | (c) Trina drives 40. miles at the same constant speed as Stephanie while moving. But midway, she has to stop for 2.0 minutes at a long traffic light. What is her average speed for the trip? |
| 65  | 55.4         | A = 65. mph B = 70. mph C = 75. mph D = 80. mph   |
| 70  | 51.4         | E = 85. mph F = None of these   |
| 75  | 48.0         | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F                             |
| 80  | 45.0         | (d) Tammy drives 40. miles at 50. mph. But midway, she also has to stop for 2.0 minutes at a long traffic light. How many minutes does her trip take?   |
| 85  | 42.4         | A = 46. min B = 48. min C = 50. min D = 52. min   |
| 90  | 40.0         | E = 54. min F = None of these   |
| 95  | 37.9         | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/> E <input type="checkbox"/> F                             |
| 100 | 36.0         | <b>For each of the following, select the answer A-D that BEST represents the motion.</b>  |
| 105 | 34.3         | (e) An ant crossing a sidewalk. This is an example of _____ Motion.   |
| 110 | 32.7         | A = No B = Uniform C = Constant Acceleration  |
| 115 | 31.3         | D = None of these   |
| 120 | 30.0         | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D   |
| 125 | 28.8         | (f) A bumblebee sitting on a flower. This is an example of _____ Motion.  |
| 130 | 27.7         | A = No B = Uniform C = Constant Acceleration  |
| 135 | 26.7         | D = None of these   |
| 225 | 16.0         | <input type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D   |

- (g) Wild horses thundering across the desert valley. This is an example of \_\_\_\_\_ Motion.  
A = No B = Uniform C = Constant Acceleration  
D = None of these
- A  B  C  D

**Use vector  $\vec{A}$  with an x-component  $A_x = 7.0\text{ m}$  and a y-component  $A_y = -5.0\text{ m}$  in the follow problems:**

- (h) The magnitude of this velocity vector is  $A =$  \_\_\_\_\_.
- |            |            |            |
|------------|------------|------------|
| A = 1.41 m | B = 3.46 m | C = 4.90 m |
| D = 8.60 m | E = 24.0 m | F = 74.0 m |
- A  B  C  D  E  F
- (i) Beth's calculation of  $\tan^{-1}$  gives her an angle of  $-35.5^\circ$ . She finds the Standard Angle for  $\vec{A}$  as \_\_\_\_\_.
- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| A = $35.5^\circ$  | B = $54.5^\circ$  | C = $125.5^\circ$ |
| D = $215.5^\circ$ | E = $305.5^\circ$ | F = $324.5^\circ$ |
- A  B  C  D  E  F
- (j) Steve's calculation of  $\tan^{-1}$  gives him an angle of  $-54.5^\circ$ . He finds the Standard Angle for  $\vec{A}$  as \_\_\_\_\_.
- |                   |                   |                   |
|-------------------|-------------------|-------------------|
| A = $35.5^\circ$  | B = $54.5^\circ$  | C = $125.5^\circ$ |
| D = $234.5^\circ$ | E = $305.5^\circ$ | F = $324.5^\circ$ |
- A  B  C  D  E  F

**To Be CONTINUED 2 (50,000 points)**

2.) Dr. Phil was on the road Saturday morning, traveling from his home in West Michigan to the intersection of US-30 and I-65 in Merrillville IN. The 1989 S-10 Blazer's odometer started at 249,973.1 miles (402,206.7 km) and ended 3.00 hours later at 250,131.8 miles (402,462.1 km). What was his average speed on the way down?

(b) After stopping for gas, Dr. Phil has to accelerate his Blazer from rest up to 65.0 mph (29.1 m/s) accelerating at  $3.16\text{ m/s}^2$ . How much time does this acceleration take?

(c) How far does Dr. Phil's Blazer travel during acceleration? *This can be solved with or without (b).*

(d) During the conference, word started circulating around that the Chicago Cubs had won their doubleheader against Pittsburgh, and Houston lost to Milwaukee. In that spirit, we offer the following: During a baseball game, the pitcher throws a ball horizontally 60 feet 6 inches (18.5 meters) to home plate, during which time it drops by 36.0 inches (0.914 meters). How long (time) does it take for the baseball to fall?

(e) Find the y-component of the baseball's velocity at home plate. *This problem can be solved with or without the answer to (d).*