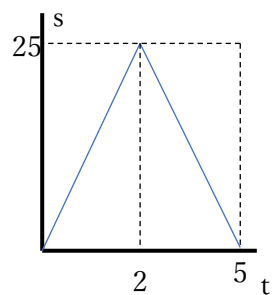
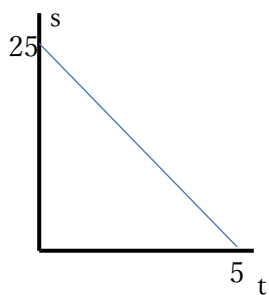
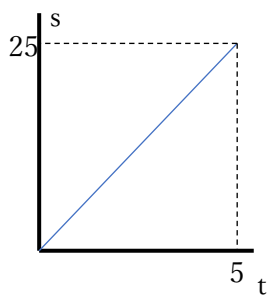


[Physics] レベルチェックテスト問題

1. A teacher walks 5m north, 2m east, 5m south and 2m west. The whole journey takes 42s. Calculate the teacher's
- (a) Average speed
 - (b) Average velocity

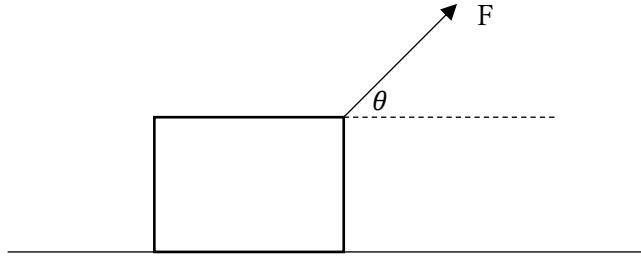
Answer:

2. Consider the following s-t graphs, describe each motion as fully as you can.



Answer:

3. If a force is acting at an angle θ relative to the horizontal, what is the vertical and horizontal component of the force?



Answer:

4. How are s-t, v-t and a-t graphs related in terms of its graph?

Answer:

5. What is the difference between scalars and vectors?

Answer:

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1. (a) Total distance = $5 + 2 + 5 + 2 = 14\text{m}$. Hence 0.33ms^{-1}
- (b) Total displacement is 0, since you are back where you started. Hence Average velocity is 0ms^{-1} . (direction does not matter when velocity is 0).

2. (a) As the vertex is $(-1, 9)$,

$$h = 1, k = 9$$

(b) As the x -intercepts are 2 and -4 ,

$$p = 2, q = -4 \text{ (or } p = -4, q = 2)$$

(c) **Method 1**

Substitute $x = 0$ into $f(x) = (x - 1)^2 - 9$.

$$f(0) = (-1)^2 - 9 = -8$$

$$y = -8$$

Method 2

Substitute $x = 0$ into $f(x) = (x - 2)(x + 4)$

$$f(0) = (0 - 2)(0 + 4) = -8$$

$$y = -8$$

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3. Horizontal component = $F \cos \theta$

Vertical component = $F \sin \theta$

[Physics] レベルチェックテスト問題

4. s - t to v - t and v - t to a - t is obtained by taking the gradient
the reverse is obtained by taking the area

[Physics] レベルチェックテスト問題

5. Scalar only has magnitude, vectors have magnitude and direction