WebAssign
CH01-HW01-SP12 (Homework)

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PHYS 172-SPRING 2012, Spring 2012
Instructor: Virendra Saxena

Current Score : 31 / 31 **Due :** Thursday, January 12 2012 11:59 PM EST

The due date for this assignment is past. Your work can be viewed below, but no changes can be made.

Important! Before you view the answer key, decide whether or not you plan to request an extension. Your Instructor may *not* grant you an extension if you have viewed the answer key. Automatic extensions are not granted if you have viewed the answer key.

View Key

1. 0.5/0.5 points | Previous Answers MI3 1.5.X.058

Which of the following are vectors? (Select all that apply.)

- [x] $5\times\langle 33, 1.04, -9.5\rangle$
- [ ] 0
- [x] $\langle 0.7, 0.7, -0.7\rangle$
- [ ] 3.5
- [ ] -3×10^{-6}
- [x] $\langle 0, 2.3, -1\rangle$

- *Read the eBook*
- Section 1.5

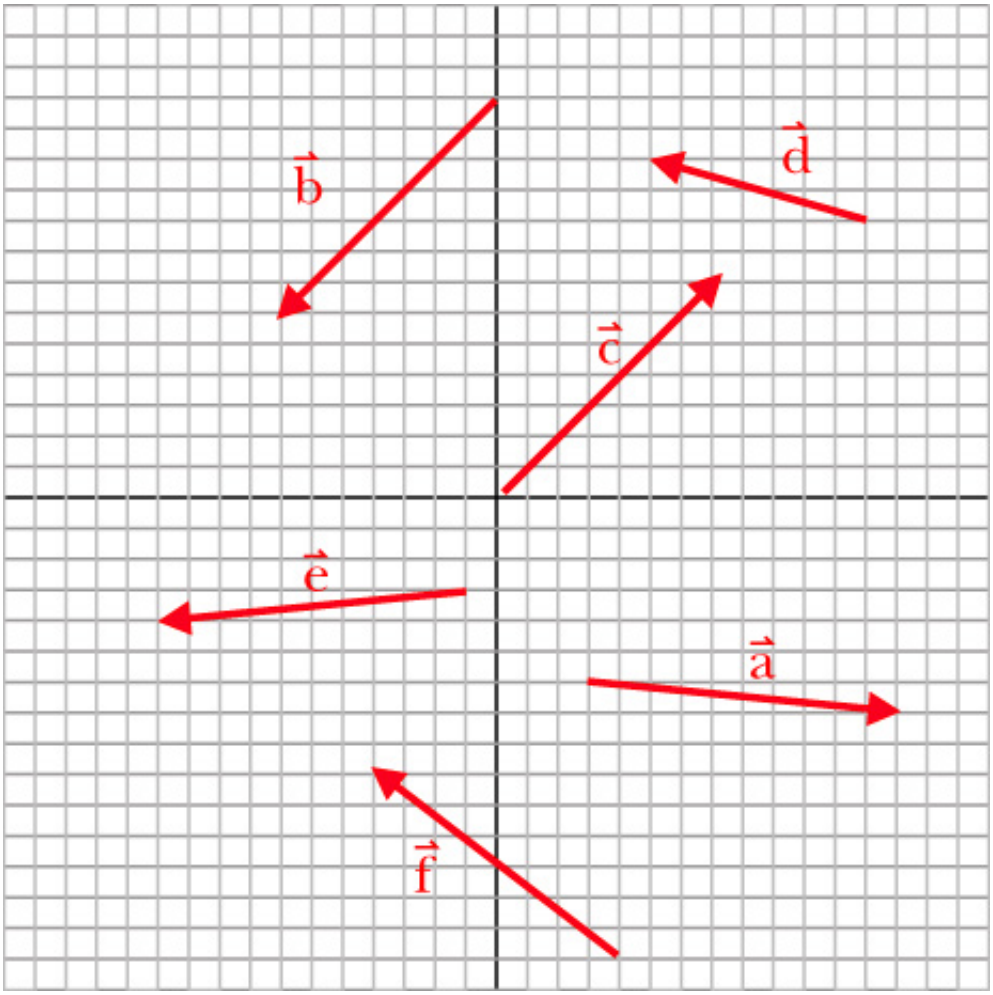
2. 0.5/0.5 points | Previous Answers MI3 1.5.X.059

Which of the following are vectors? (Select all that apply.)

- [x] $\vec{a}$
- [x] $\langle r_x, r_y, r_z\rangle$
- [ ] $|\vec{r}|$
- [ ] r
- [x] $\vec{r}/2$
- [x] $10\vec{r}$

- *Read the eBook*
- Section 1.5

3. 1/1 points | Previous Answers

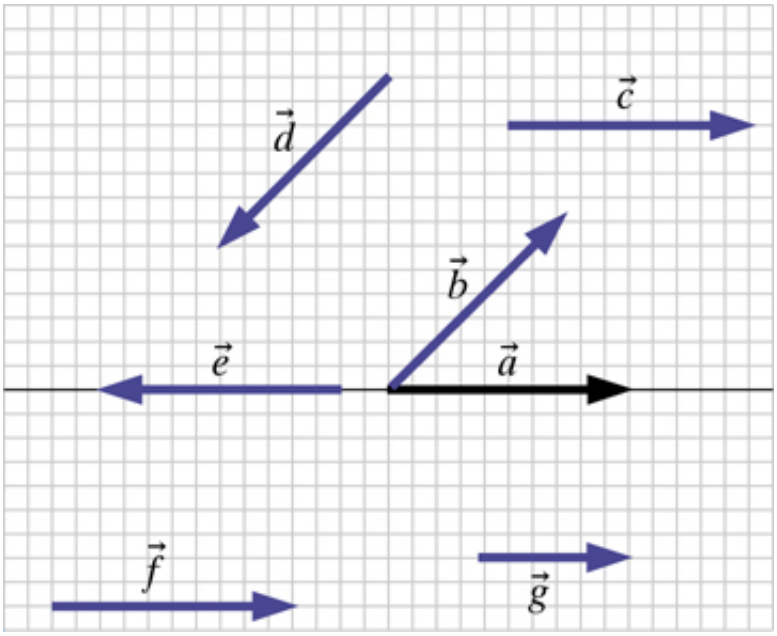


Which of the arrows shown in the diagram represents the vector < -8, 6, 0>?

f ✔

4. 1/1 points | Previous Answers MI3 1.5.X.061

Read these questions carefully. They are not the same. (Select all that apply for each.)



(a) Which of the vectors in the diagram have magnitudes equal to the magnitude of $\vec{a}$?

- [x] $\vec{b}$
- [x] $\vec{c}$
- [x] $\vec{d}$
- [x] $\vec{e}$
- [x] $\vec{f}$
- [ ] $\vec{g}$

(b) Which of the vectors in the diagram are equal to $\vec{a}$?

- [ ] $\vec{b}$
- [x] $\vec{c}$
- [ ] $\vec{d}$
- [ ] $\vec{e}$
- [x] $\vec{f}$
- [ ] $\vec{g}$

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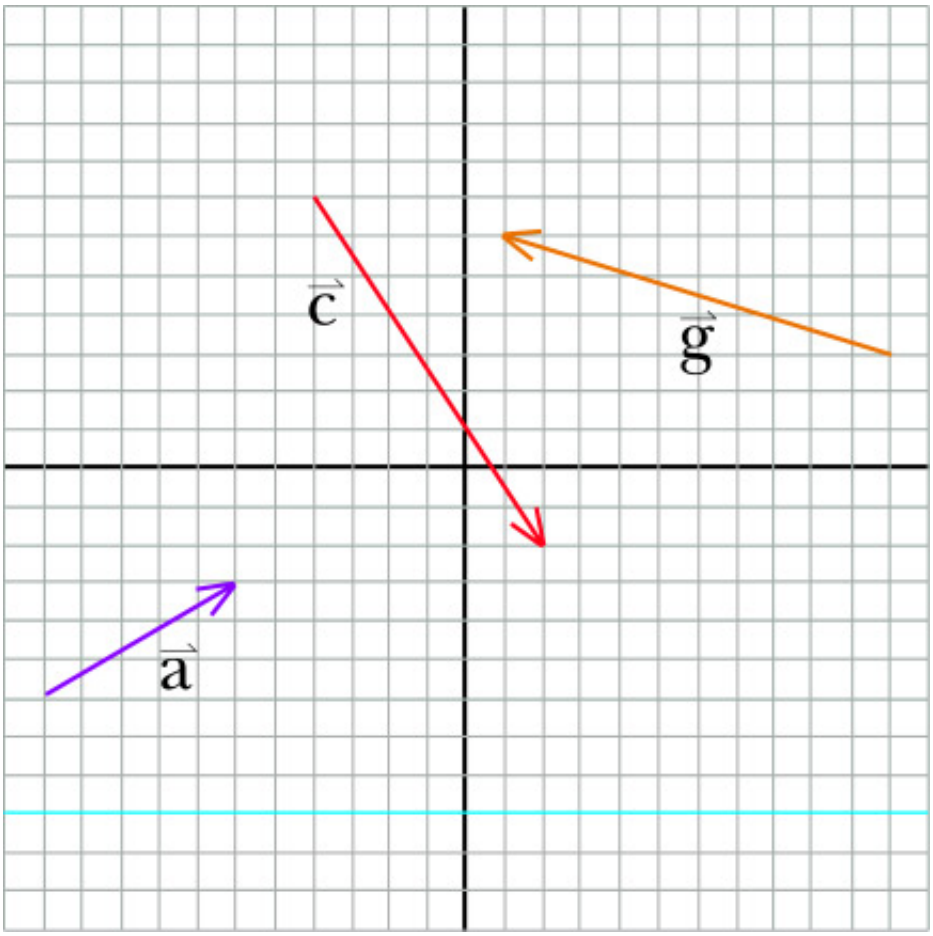
- Section 1.5

5. 2/2 points | Previous Answers MI3 1.5.X.062.alt01

In the diagram below three vectors are represented by arrows in the xy plane. Each division represents 1 meter.



(a) What are the components of the vector $\vec{c}$?

$\vec{c}$ = ✔ m

(b) What is the magnitude of $\vec{c}$?

$|\vec{c}|$ = 10.82 ✔ m

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- Section 1.5

6. 2/2 points | Previous Answers MI3 1.5.X.012

If $\vec{a}$ = < 3, -1, 6 >, then what is $8*\vec{a}$?

$8*\vec{a}$ = <24 ✔ ,-8 ✔ ,48 ✔ > How does the magnitude of $8*\vec{a}$ compare to the magnitude of $\vec{a}$?

- The magnitude of $8*\vec{a}$ is a factor of 8 less than the magnitude of $\vec{a}$.
- Not enough information is given.
- The magnitude of $8*\vec{a}$ is zero.
- The magnitude of $8*\vec{a}$ is the same as the magnitude of $\vec{a}$.
- (•) The magnitude of $8*\vec{a}$ is a factor of 8 greater than the magnitude of $\vec{a}$. ✓

- *Read the eBook*
- Section 1.5

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7. 4/4 points | Previous Answers MI3 1.5.X.084

A planet is located at < -7e10, 2e10, -4e10 > m. A star is located at < 1e10, -1e10, 7e10 > m.

(a) What is $\vec{r}$, the vector from the star to the planet?

$\vec{r}$ = ✓ m

(b) What is the magnitude of $\vec{r}$?

$|\vec{r}|$ = [13.93e10] ✓ m

(c) What is $\hat{r}$, the unit vector (vector with magnitude 1) in the direction of $\vec{r}$?

$\hat{r}$ = ✓

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- Section 1.5

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8. 12/12 points | Previous Answers MI3 1.5.X.072

Any vector can be written as a unit vector multiplied by the magnitude of the vector (a positive scalar). Write each of the following vectors as the magnitude of the vector times the appropriate unit vector:

< 0, 0, 6.5 > = ([6.5] ✓) * < [0] ✓ , [0] ✓ , [1] ✓ >

< 0, -672, 0 > = ([672] ✓) * < [0] ✓ , [-1] ✓ , [0] ✓ >

< 0.00320, 0, -0.00320 > = ([0.00453] ✓) * < [0.70640] ✓ , [0] ✓ , [-0.70640] ✓ >

< 2e6, -8e6, 4e6 > = ([9.17e6] ✓) * < [0.22] ✓ , [-0.87] ✓ , [0.44] ✓ >

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- Section 1.5

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9. 0.5/0.5 points | Previous Answers MI3 1.5.X.063

If $\vec{p}$ = < -9, 4, 2 >, what is 3 + $\vec{p}$?

- < -12, 1, -1 >
- (•) This is a meaningless expression, because a scalar cannot be added to a vector.
- < -6, 7, 5 >
- < -27, 12, 6 >
- < -3.00, 1.33, 0.67 >

✓

- *Read the eBook*
- Section 1.5

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10. 5/5 points | Previous Answers MI3 1.5.X.021

$\vec{A} = \langle 700, 900, -900 \rangle$ and $\vec{B} = \langle -300, -300, 350 \rangle$.
Calculate the following:

(a) $\vec{A} + \vec{B}$

⟨ 400 ✓ , 600 ✓ , -550 ✓ ⟩

(b) $|\vec{A} + \vec{B}|$

906.92 ✓

(c) $|\vec{A}|$

1452.58 ✓

(d) $|\vec{B}|$

550 ✓

(e) $|\vec{A}| + |\vec{B}|$

2002.58 ✓

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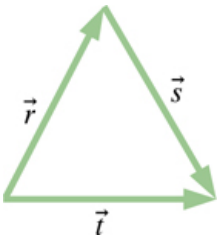
11.1/1 points | Previous Answers MI3 1.5.X.023

Which of the following statements about the three vectors shown are correct?



- [x] $\vec{r} = \vec{t} - \vec{s}$
- [ ] $\vec{s} + \vec{t} = \vec{r}$
- [x] $\vec{s} = \vec{t} - \vec{r}$
- [x] $\vec{r} + \vec{s} = \vec{t}$
- [ ] $\vec{r} + \vec{t} = \vec{s}$

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12.1.5/1.5 points | Previous Answers MI3 1.5.X.026

A unit vector lies in the *xy* plane, at an angle of 132 degrees from the +*x* axis, with a positive *y* component. What is the unit vector? (It helps to draw a diagram.)

⟨ -0.67 , 0.74 , 0 ⟩

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