


Assignment Previewer

[Close this window](#)

Previewer Tools

**HW1-Due Jan 13 2009 M281
(526889)**

[Show All](#) In View:
[Hide All](#) Hidden: [Assignment Score](#) | [Mark](#) | [Help/Hints](#) | [Key](#) | [Solution](#)
[Show New Randomization](#) | [Open in Editor](#) |  | [Details](#)

About this Assignment

Due: **Tue Jan 13 2009 08:00 PST**

1. SCalc5 13.1.004. [292196] [Show Details](#)

What is the projection of the point (2, 3, 5) on the xy -plane?

(, ,)

What is the projection of the point (2, 3, 5) on the yz -plane?

(, ,)

What is the projection of the point (2, 3, 5) on the xz -plane?

(, ,)

Draw a rectangular box with the origin and (2, 3, 5) as opposite vertices and with its faces parallel to the coordinate planes. Label all vertices of the box. (Do this on paper. Your teacher may ask you to turn in this work.) Find the length of the diagonal of the box.

2. SCalc5 13.1.010. [292200] [Show Details](#)

Find the distance from (3, 8, -5) to each of the following.

(a) the xy -plane

(b) the yz -plane

(c) the xz -plane

(d) the x -axis

(e) the y -axis

(f) the z -axis

3. SCalc5 13.1.036. [292216] [Show Details](#)

Write inequalities to describe this region. The solid rectangular box in the first octant bounded by the planes $x = 3$, $y = 4$, and $z = 5$.

	$\leq x \leq$	
	$\leq y \leq$	
	$\leq z \leq$	

4. SCalc5 13.2.004. [292199] [Show Details](#)

Write each combination of vectors as a single vector.

(a) $\vec{AC} + \vec{CB}$

(b) $\vec{BA} + \vec{AD}$

(c) $\vec{CD} - \vec{AD}$

(d) $\vec{BD} + \vec{DA} + \vec{AC}$

5. SCalc5 13.2.018. [292183] [Show Details](#)

Find $|\mathbf{a}|$, $\mathbf{a} + \mathbf{b}$, $\mathbf{a} - \mathbf{b}$, $2\mathbf{a}$, and $3\mathbf{a} + 4\mathbf{b}$.

$\mathbf{a} = 6\mathbf{i} - 7\mathbf{j}$, $\mathbf{b} = \mathbf{i} + 5\mathbf{j}$

$|\mathbf{a}|$

$\mathbf{a} + \mathbf{b}$

 $\mathbf{i} +$ \mathbf{j}

$\mathbf{a} - \mathbf{b}$

 $\mathbf{i} +$ \mathbf{j}

$2\mathbf{a}$

 $\mathbf{i} +$ \mathbf{j}

$3\mathbf{a} + 4\mathbf{b}$

$$\boxed{} \mathbf{i} + \boxed{} \mathbf{j}$$

6. SCalc5 13.2.028. [292201] [Show Details](#)

If a child pulls a sled through the snow with a force of 50 N exerted at an angle of 32° above the horizontal, find the horizontal and vertical components of the force.

horizontal component

N

vertical component

N

7. SCalc5 13.3.002. [292178] [Show Details](#)

Find the dot product of two vectors if their lengths are 3 and $\frac{1}{8}$ and the angle between them is $\frac{\pi}{4}$.

8. SCalc5 13.3.018. [292187] [Show Details](#)

Find the angle between the vectors. (First find an exact expression and then approximate to the nearest degree.)

$$\mathbf{a} = (6, -3, 2)$$

$$\mathbf{b} = (2, 1, -2)$$

$^\circ$

9. HW1.1-M281 [774554] [Show Details](#)

Problem 1.1. The equation $x^2 + 6x + y^2 - 4y + z^2 + 3z = -1$ is the equation of a sphere. Find the

- (1) The radius of the sphere.
- (2) The x -coordinate of the center of the sphere.
- (3) The y -coordinate of the center of the sphere.
- (4) The z -coordinate of the center of the sphere.



Numerical answers xx.xx are desired:

<input type="text"/>	(1)
<input type="text"/>	(2)
<input type="text"/>	(3)
<input type="text"/>	(4)

10. HW1.2-M281 [774557] [Show Details](#)

Problem 1.2. Let $P = (1, -2, 3)$, $Q = (1, 2, 1)$, and $R = (-1, 1, 3)$.

- (1) Find the x -coordinate of the midpoint of the line segment joining P to Q .
- (2) Find the y -coordinate of the midpoint of the line segment joining P to Q .
- (3) Find the z -coordinate of the midpoint of the line segment joining P to Q .
- (4) Find the length of the line segment PR .
- (5) Find the cosine of the angle θ the line segment PQ makes with QR .



Numerical answers xx.xx are desired:

<input type="text"/>	(1)
<input type="text"/>	(2)
<input type="text"/>	(3)
<input type="text"/>	(4)
<input type="text"/>	(5)

11. HW1.3-M281 [774558] [Show Details](#)

Problem 1.3. A 7 pound Puffin is sitting on a wire. The wire is a straight line through the origin and through the point $(4, 3)$. The force due to gravity is $(0, -7)$. Decompose this force into a tangential component T that lies along the wire and a normal component N that is perpendicular to the wire. Determine the magnitude of the tangential and normal components.



Numerical answers xx.xx are desired:

(1) The magnitude of the tangential force

(2) The magnitude of the normal force

[Submit for Testing](#)