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 INSTRUCTOR

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## 12.5 Rectas y Planos (Homework)

### Current Score

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
POINTS	-/2	-/2	-/2	-/2	-/2	-/2	-/2	-/2	-/2	-/2	-/2	-/1	-/2	-/2	-/2	-/2	-/2	-/2	-/2

#### TOTAL SCORE

-/35

0.0%

### Due Date

**SUN, FEB 23, 2020**

11:59 PM CST



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### Assignment Submission & Scoring

#### Assignment Submission

For this assignment, you submit answers by question parts. The number of submissions remaining for each question part only changes if you submit or change the answer.

#### Assignment Scoring

Your last submission is used for your score.

1.

-2 points

SCALC8 12.5.003.

 My Notes

Ask Your Teacher

Find a vector equation and parametric equations for the line. (Use the parameter  $t$ .)

The line through the point  $(4, 2.1, 3.1)$  and parallel to the vector  $3\mathbf{i} + 2\mathbf{j} - \mathbf{k}$

 $\mathbf{r}(t) =$  $(x(t), y(t), z(t)) = ($  $)$ 

2.

-2 points

SCALC8 12.5.005.

 My Notes

Ask Your Teacher

Find a vector equation and parametric equations for the line. (Use the parameter  $t$ .)

The line through the point  $(1, 0, 9)$  and perpendicular to the plane  $x + 2y + z = 7$

 $\mathbf{r}(t) =$  $(x(t), y(t), z(t)) = ($  $)$

3.

-2 points

SCALC8 12.5.006.

My Notes

Ask Your Teacher

Find parametric equations for the line. (Use the parameter  $t$ .)The line through the origin and the point  $(7, 5, -1)$  $(x(t), y(t), z(t)) = ($ 

)

Find the symmetric equations.

☐  $\frac{x}{7} - \frac{y}{5} = -z$

☐  $x - 7 = y - 5 = z + 1$

☐  $\frac{x}{7} - \frac{y}{5} = z$

☐  $\frac{x}{5} - \frac{y}{7} = -z$

☐  $x + 7 = y + 5 = z - 1$

4.

-2 points

SCALC8 12.5.010.

My Notes

Ask Your Teacher

Find parametric equations and symmetric equations for the line. (Use the parameter  $t$ .)The line through  $(5, 1, 0)$  and perpendicular to both  $\mathbf{i} + \mathbf{j}$  and  $\mathbf{j} + \mathbf{k}$  $(x(t), y(t), z(t)) = ($ 

)

The symmetric equations are given by

☐  $x + 5 = -(y + 1), z = 0.$

☐  $x - 5 = y - 1 = -z.$

☐  $-(x - 5) = y - 1 = z.$

☐  $x + 5 = -(y + 1) = z.$

☐  $x - 5 = -(y - 1) = z.$

5.

-2 points

SCALC8 12.5.011.

My Notes

Ask Your Teacher

Find parametric equations for the line. (Use the parameter  $t$ .)

The line through  $(-8, 6, 7)$  and parallel to the line  $\frac{1}{2}x = \frac{1}{3}y = z + 1$

$(x(t), y(t), z(t)) = ($



)

Find the symmetric equations.

$$\frac{x - 8}{2} - \frac{y + 6}{3} = z$$

☐ + 7

$$\frac{x}{2} - \frac{y}{3} = z + 7$$

$$\frac{x + 8}{2} - \frac{y - 6}{3} = z -$$

☐ 7

$$\frac{x}{2} - \frac{y}{3} = z - 7$$

$$\frac{x + 8}{2} - \frac{y + 6}{3} = z +$$

☐ 7

6.

-2 points

SCALC8 12.5.013.

My Notes

Ask Your Teacher

Is the line through  $(-4, -6, 1)$  and  $(-2, 0, -3)$  parallel to the line through  $(12, 11, 5)$  and  $(9, 2, 11)$ ?

☐ Yes

☐ No

7.

-2 points

SCALC8 12.5.016.

My Notes

Ask Your Teacher

(a) Find parametric equations for the line through  $(2, 1, 6)$  that is perpendicular to the plane  $x - y + 3z = 4$ . (Use the parameter  $t$ .)

 $(x(t), y(t), z(t)) = ($ 


 $)$ 

(b) In what points does this line intersect the coordinate planes?

 $(x, y, z) = ($ 

xy-plane


 $)$ 
 $(x, y, z) = ($ 

yz-plane


 $)$ 
 $(x, y, z) = ($ 

xz-plane


 $)$ 

8.

-2 points

SCALC8 12.5.024.

My Notes

Ask Your Teacher

Find an equation of the plane.

The plane through the point  $(8, 9, 1)$  and with normal vector  $8\mathbf{i} + \mathbf{j} - \mathbf{k}$

9.

-2 points

SCALC8 12.5.026.

 My Notes

Ask Your Teacher

Find an equation of the plane.

The plane through the point  $(8, 0, 1)$  and perpendicular to the line  $x = 3t$ ,  $y = 3 - t$ ,  $z = 9 + 5t$ 

10.

-2 points

SCALC8 12.5.027.

 My Notes

Ask Your Teacher

Find an equation of the plane.

The plane through the point  $(4, -2, -7)$  and parallel to the plane  $2x - y - z = 1$ 

11.

-2 points

SCALC8 12.5.031.

 My Notes

Ask Your Teacher

Find an equation of the plane.

The plane through the points  $(0, 3, 3)$ ,  $(3, 0, 3)$ , and  $(3, 3, 0)$

12.

-1 points

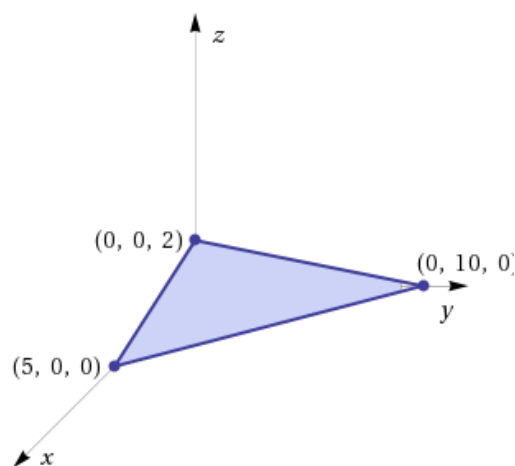
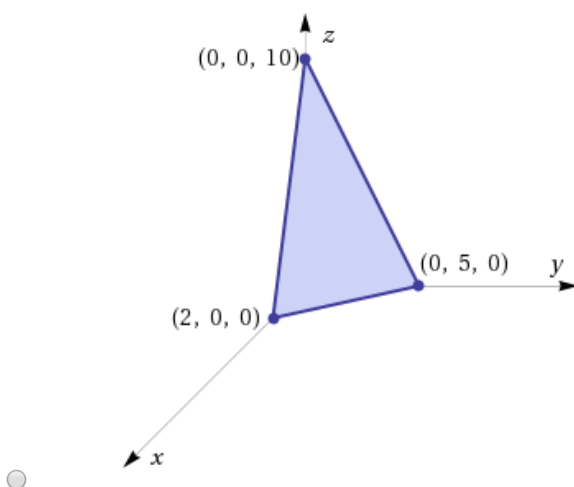
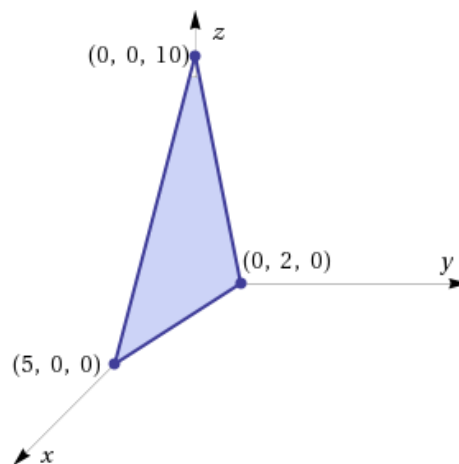
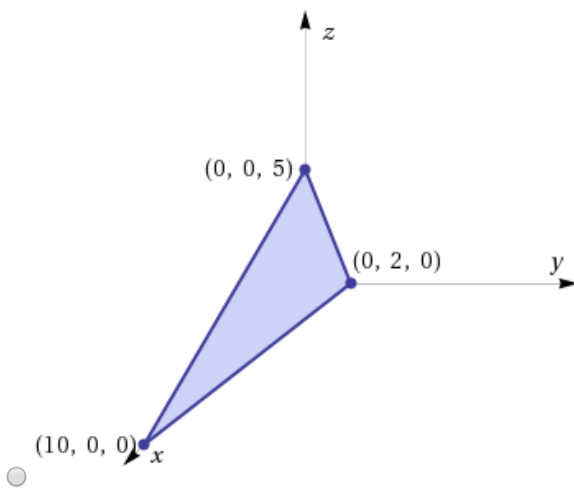
SCALC8 12.5.041.

My Notes

Ask Your Teacher

Use intercepts to help sketch the plane.

$$2x + 5y + z = 10$$



13.

-2 points

SCALC8 12.5.045.

My Notes

Ask Your Teacher

Find the point at which the line intersects the given plane.

$$x = 2 - 2t, \quad y = 3t, \quad z = 1 + t; \quad x + 2y - z = 4$$

 $(x, y, z) = ($ 


 $)$

14. -/2 points  SCALC8 12.5.049. My NotesAsk Your Teacher 

Find direction numbers for the line of intersection of the planes  $x + y + z = 5$  and  $x + z = 0$ . (Enter your answers as a comma-separated list.)

15. -/2 points  SCALC8 12.5.057. My NotesAsk Your Teacher 

Consider the following planes.

$$x + y + z = 5, \quad x + 5y + 5z = 5$$

(a) Find parametric equations for the line of intersection of the planes. (Use the parameter  $t$ .)

$$(x(t), y(t), z(t)) = ($$

  
  
 )

(b) Find the angle between the planes. (Round your answer to one decimal place.)

°
16. -/2 points  SCALC8 12.5.061. My NotesAsk Your Teacher 

Find an equation for the plane consisting of all points that are equidistant from the points  $(7, 0, -2)$  and  $(9, 12, 0)$ .

17. -/2 points  SCALC8 12.5.065. My NotesAsk Your Teacher 

Find parametric equations for the line through the point  $(0, 3, 2)$  that is parallel to the plane  $x + y + z = 1$  and perpendicular to the line  $x = 1 + t, y = 3 - t, z = 2t$ . (Use the parameter  $t$ .)

$$(x(t), y(t), z(t)) = ($$

  
  
 )



18. -/2 points ▾ SCALC8 12.5.071.

My Notes

Ask Your Teacher ▾

Find the distance from the point to the given plane.

$$(1, -4, 9), \quad 3x + 2y + 6z = 5$$



19. -/0 points ▾ SCALC8 12.5.019.

My Notes

Ask Your Teacher ▾

Determine whether the lines  $L_1$  and  $L_2$  are parallel, skew, or intersecting.

$$L_1: x = 9 + 6t, \quad y = 12 - 3t, \quad z = 3 + 9t$$

$$L_2: x = 1 + 4s, \quad y = 3 - 2s, \quad z = 4 + 5s$$

- ☐ parallel
- ☐ skew
- ☐ intersecting

If they intersect, find the point of intersection. (If an answer does not exist, enter DNE.)

$$(x, y, z) = ($$



$$)$$

20. -/0 points ▾ SCALC8 12.5.020.

My Notes

Ask Your Teacher ▾

Determine whether the lines  $L_1$  and  $L_2$  are parallel, skew, or intersecting.

$$L_1: x = 9 - 3t, \quad y = 8 + 9t, \quad z = 7 - 6t$$

$$L_2: x = 8 + 2s, \quad y = -6s, \quad z = 7 + 4s$$

- ☐ parallel
- ☐ skew
- ☐ intersecting

If they intersect, find the point of intersection. (If an answer does not exist, enter DNE.)

$$(x, y, z) = ($$



$$)$$

21.

-/0 points ▼

SCALC8 12.5.040.

 My Notes

Ask Your Teacher ▼

Find an equation of the plane.

The plane that passes through the line of intersection of the planes  $x - z = 1$  and  $y + 2z = 2$  and is perpendicular to the plane  $x + y - 4z = 3$

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