

Quiz I MTH 111, Spring 2016

Ayman Badawi

QUESTION 1. 1. Given $f_1 = (2, -3)$, $f_2 = (2, 1)$ are the foci of an ellipse and $k = 10$ is the ellipse constant. Find the equation of the ellipse. Find all 4 vertices. Find the length of the major axis and the length of the minor axis. Sketch a rough graph of such ellipse.

2. Let $y = -3x^2 + 12x - 9$. Find the focus, vertex, and the directrix line. Sketch a rough graph of such parabola.

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Quiz II MTH 111, Spring 2016

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QUESTION 1. Given $\frac{(x+2)^2}{36} - \frac{y^2}{13} = 1$.

- (i) Sketch (roughly) the graph of the above equation.
- (ii) The center $C =$
- (iii) The vertices : $V_1 =$ $V_2 =$
- (iv) The foci : $F_1 =$ $F_2 =$
- (v) The Hyperbola constant, $K =$
- (vi) Let Q be a point on the curve. Then $||QF_1| - |QF_2|| =$
- (vii) The asymptotes: $y =$ and $y =$

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Quiz III MTH 111, Spring 2016

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QUESTION 1. • Let V be a vector with initial point $(-4, 2)$ and terminal point $(-1, 6)$. Then

$$V =$$

$$|V| =$$

• Given $V = \langle -2, 1 \rangle$ is a vector with terminal point $(-4, 8)$. Then

Initial point =

$$|V| =$$

• Let $V = \langle -4, 3 \rangle$ and $U = \langle 5, 12 \rangle$ are two vectors with the same initial point. Then

The angle between them is =

• Let $V = \langle -4, 3 \rangle$ and $U = \langle 5, 12 \rangle$ are two vectors such that the terminal point of V equals the initial point of U . Then

Find the angle between them is =

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Quiz IV MTH 111, Spring 2016

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QUESTION 1. (i) Given $v = \langle 1, 2 \rangle$, $u = \langle 3, 5 \rangle$ are two vectors with the same initial point. Then

a) $Proj_u^v =$

b) $|Proj_u^v| =$

c) Find $|rej_u^v|$ (where rej_u^v is the rejection of v on u).

(ii) Given $Q = (2, 3)$ is a point not lying on the line $L : 3y = -4x + 9$. Then

The distance between Q and L , $|QL| =$

(iii) Given $u = \langle 4, 3 \rangle$ and v are two vectors with the same initial point such that $rej_v^u = \langle 0, 3 \rangle$ and $|v| = 16$. THENVector $v =$ (there are two possible answers, just give me one possibility)**Faculty information**

Quiz V MTH 111, Spring 2016

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QUESTION 1. (i) Given $(1, -1, 2)$ and $(2, -3, 8)$ are two point on a line L . What are the parametric equations of L ?

(ii) Given $Q = (2, 3, -4)$ lies on a line L such that $v = \langle 3, 6, -8 \rangle$ is a directing vector of L . What are the parametric equations of L ?

(iii) Which of the points: $(5, -4, -2)$, $(-1, -7, -8)$ lie on the line $L : x = 3 + 2t, y = -5 + t, z = 4t$?

(iv) Find the angle between $v = \langle -1, 2, 2 \rangle$ and $u = \langle 2, -1, 2 \rangle$ if the terminal point of v is equal to the initial point of u .

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Quiz VI: MTH 111, Spring 2016

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QUESTION 1. (i) Let $L_1 : x = 3 + 2t, y = -2 - 2t, z = 1 - 4t$ and $L_2 : x = 3 + i, y = -14 + 2i, z = 1 - 2i$.The intersection point of L_1 with L_2 is(ii) Find the equation of the plane that contains the points $(1, 1, 1), (-1, 2, 1), (-1, 2, 6)$.(iii) The line $L : x = 3 + 2t, y = -4t, z = 1 + 2t$ intersects the plane $x - 2y + z = 10$ in exactly one point, say Q .

Then

 $Q =$ **Faculty information**Ayman Badawi, Department of Mathematics & Statistics, American University of Sharjah, P.O. Box 26666, Sharjah, United Arab Emirates.
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Quiz VII MTH 111, Spring 2016

Ayman Badawi

QUESTION 1. (i) Given $F'(4) = 32$ and $y(x) = F(\frac{1}{x})$ and $k(x) = F(5x - 1)$. Find

a. $y'(\frac{1}{4})$.

b. $k'(1)$

(ii) Let $Q_1 = (4, 2)$, $Q_2 = (0, 0)$. Find a point on the line $y = -1$, say Q , such that $|Q_1Q| + |QQ_2|$ is minimum.**Faculty information**Ayman Badawi, Department of Mathematics & Statistics, American University of Sharjah, P.O. Box 26666, Sharjah, United Arab Emirates.
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Quiz 8 MTH 111, Spring 2016

Ayman Badawi

QUESTION 1. (i) Let $y = 3e^{(x^2+2x+1)} + 7x$. Then $y' =$

(ii) Let $y = \ln \left(\frac{(3x+2)^4}{(4x+1)^3} \right)$,

$$y' =$$

(iii) Let $f(x) = x^3 - 3x + 1$.a) Find the critical values of $f(x)$.b) For what values of x does $f(x)$ decrease?c) For what value of x does $f(x)$ have minimum value?(iv) Sketch $y = -2e^{(2x-4)} + 4$ **Faculty information**