

MATH 241 MATLAB Project 4 (Quiz) Sample 2

Directions: For those questions which ask for a Matlab command simply write do the command as you would type it into Matlab. For those which give a command and request the effect simply write a sentence saying what that command would do. Point values are on the right.

Important: For all questions assume that all variables needed are defined symbolically.

1. What Matlab command would plot the vector-valued function which traces out the circle $x^2 + y^2 = 9$ with $z = 3$?

Answer:

[2 pt]

2. What Matlab command would plot the point $(-2, 3, 3)$?

Answer:

[1 pt]

3. What Matlab command would find $\frac{d}{dx}(x^7 - \sin(x^4))$?

Answer:

[2 pt]

4. What Matlab command would factor the polynomial $2x^4 + 3x^3 + x^2 + 9x - 15$?

Answer:

[2 pt]

5. What Matlab command would solve the equation $x^2 + 5x = 8$?

Answer:

[2 pt]

6. Assuming that \mathbf{u} and \mathbf{v} are previously defined vectors, what Matlab command would find a unit vector perpendicular to both?

Answer:

[2 pt]

7. What Matlab command would plot the surface $f(x, y) = \sin(\sqrt{x^2 + y^3})$?

Answer:

[2 pt]

8. What Matlab command would find $\int_0^1 \int_0^x xy + x \, dy \, dx$?

Answer:

[2 pt]

9. What Matlab command would plot the cylinder $x^2 + z^2 = 9$ between $y = 0$ and $y = 2$?

Answer:

[2 pt]

10. Fill in the four missing underlines of the following Matlab commands so that the result would find $\int_C x \, dx + xy \, dy + z \, dz$ where C is the line segment from $(1, 1, 1)$ to $(2, 3, 4)$.

```
clear
syms t x y z
rbar=_____
F=_____
sub=_____
int(_____)
```

[4 pt]

11. Explain what the following Matlab command pair would do.

```
[x,y]=meshgrid(-5:1:5,-5:1:5)
```

```
quiver(x,y,y/5,-x/5,0)
```

Answer:

[2 pt]

12. What would the Matlab command `int(x^2,x,0,2)` give for output?

Answer:

[2 pt]

$$\int_t^h e^n dx$$