Suppose the course contains the syllabus, grading policy and other information.

This file is /conf/snippets/setHeader.pg you can use it as a model for creating files which introduce each problem set.

The primary purpose of WeBWorK is to let you know that you are getting the correct answer or to alert you if you are making some kind of mistake. Usually you can attempt a problem as many times as you want before the due date. However, if you are having trouble figuring out your error, you should consult the book, or ask a fellow student, one of the TA's or your professor for help. Don’t spend a lot of time guessing – it’s not very efficient or effective.

Give 4 or 5 significant digits for (floating point) numerical answers. For most problems when entering numerical answers, you can if you wish enter elementary expressions such as $2^\pi$ instead of 8, $\sin(3 \pi/2)$ instead of -1, $e^{\ln(2)}$ instead of 2, $(2 + \tan(3)) \cdot (4 - \sin(5)) \cdot 6 - 7/8$ instead of 27620.3413, etc. Here’s the list of the functions which WeBWorK understands.

You can use the Feedback button on each problem page to send e-mail to the professors.

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1. (3 pts) Library/Union/setMVfunctions/an14_1_1.pg
Suppose $f(x,y) = x^2 - 8$. Compute the following values:

- $f(0,1) = \ldots$
- $f(1,0) = \ldots$
- $f(0,0) = \ldots$
- $f(-4,1) = \ldots$
- $f(t,6t) = \ldots$
- $f(u,v,u-v) = \ldots$

Correct Answers:
- $-8$
- $-12$
- $u^*\cdot(6\cdot t)^*2-8$
- $u\cdot v\cdot (u-v)^*2-8$

2. (1 pt) Library/272/setStewart14_1/problem_1.pg

The domain of the function $f(x,y) = \sqrt{x} + \sqrt{y}$ is ________

- The first quadrant
- The area inside a parabola
- The first and third quadrants
- The union of two intervals
- All of the xy-plane

Correct Answers:
- A

3. (1 pt) Library/272/setStewart14_1/problem_2.pg

The domain of the function $f(x,y) = \frac{3x+5y}{x^2+y^2-4}$ is ________

- The first quadrant
- The area inside a circle (including the circle)
- All the xy-plane except a circle
- The union of two intervals
- The area inside a circle (not including the circle)

Correct Answers:
- A

4. (1 pt) Library/272/setStewart14_1/example2/example2.pg

Match the functions with the graphs labeled A - D. As always, you may click on the thumbnail image to produce a larger image in a new window (sometimes exactly on top of the old one). Just take your time; process of elimination will help with ones that are not obvious.

- $f(x,y) = (x-y)^2$
- $f(x,y) = (x^2-y^2)^2$
- $f(x,y) = 3 - x^2 - y^2$
- $f(x,y) = 1/(1+x^2+y^2)$

Correct Answers:
- C
- D
- A
- B

5. (1 pt) Library/272/setStewart14_1/example5/example5.pg

Match the functions with their contour plots labeled A - D. Most of these functions appear in the previous problem, so comparing with the graphs there may help. As always, you may click on the thumbnail image to produce a larger image in a new window (sometimes exactly on top of the old one).

- $f(x,y) = (x^2-y^2)^2$
- $f(x,y) = (x-y)^2$
- $f(x,y) = 1/(1+x^2+y^2)$
- $f(x,y) = 3 - x^2 - y^2$
Consider the function

\[ f(x, y) = \frac{xy^2 - 2x^3}{6}. \]

Which graph below corresponds to the following traces:

1. The trace for \( x = -0.5 \)
2. The trace for \( x = 1.45 \)
3. The trace for \( y = 0.55 \)
4. The trace for \( y = -1.8 \)

Correct Answers:
- D
- A
- C
- B

(a) Describe a possible graph of the temperature, \( T \), on an east-west line through Durango, Colorado, if the origin is at Durango, the positive x-axis corresponds to east of Durango, and the vertical z-axis is the temperature. For negative \( x \) within a few hundred miles of the origin, the sign of \( T'(x) \) is [ ], while for positive \( x \) a few hundred miles from the origin, the sign of \( T'(x) \) is [ ]. We estimate that \( T(0) = [ ] \) degrees Fahrenheit.

(b) Describe a possible graph of the temperature, \( T \), on a north-south line through Des Moines, Iowa, if the origin is at Des Moines, the positive y-axis corresponds to north of Des Moines, and the vertical z-axis is the temperature. For negative \( y \) within a few hundred miles of the origin, the sign of \( T'(y) \) is [ ], while for positive \( y \) a few hundred miles from the origin, the sign of \( T'(y) \) is [ ]. We estimate that \( T(0) = [ ] \) degrees Fahrenheit.

Correct Answers:
- Negative
- Positive
- 55
- Negative
- 53