MA 224 - Quiz 7 Practice Problems

Feel free to work on these with classmates. These are just practice problems to help you guage how comfortable you are with the material—completely optional. The quiz will not be this long.

Note that this doesn't necessarily cover all the topics that the quiz can cover: it is intended to be just a review of a couple key things.

Find the domain:

1. $$f(x,y) = \frac{\sqrt[3]{x-y}}{x-y^2}$$

2. $$g(s,t) = e^{\ln(\sqrt{s^2+t^2-1})}$$

3. $$h(u,v) = \frac{\ln|u+v|}{(u^2-v^2)}$$

Find f_{xy}

4. $$f(x,y) = (x^2-y^2)\left[\ln\left([5x-1]^2\right)\right]^3$$

Find $\frac{\partial^2 K}{\partial s^2}$

5. $$K(s,r) = s^2r^2e^{sr}$$

Answers

Keep in mind there are other CORRECT ways to express these answers, but the answers I provide are likely to be the way the answers would appear on an exam.

1. $x \neq y^2$

2. $s^2 + t^2 > 1$

3. $u \neq \pm v$

4. (hint: since $f_{xy} = f_{yx}$, try figuring out f_{yx}. Distributing first can help!) $f_{xy} = 60y(5x-1)\left(\ln\left([5x-1]^2\right)\right)^2 \cdot \frac{1}{((5x-1)^2)} = \frac{60y}{(5x-1)}\left(\ln\left([5x-1]^2\right)\right)^2$

5. $K_{ss} = r^2 e^{sr}\left(2 + 4sr + s^2 r^2\right)$