Linköpings universitet
Matematiska institutionen

Matematisk analys, 764G07 Provkod KTR2.
Svar till dugga 2.
2019-10-09

1. (a) $x = \pm\frac{5}{12}\pi + \pi n, \ n \in \mathbb{Z}$.
   (b) $x = 0$.
   (c) $x = -2$.

2. (a) $-\frac{\pi}{6} < x < \frac{\pi}{2}$.
   (b) $\frac{5}{2}$.
   (c) 2.

3. (a) $y = 2x + 1$.
   (b) 0.
   (c) $a = -\frac{1}{3}$.

4. (a) $f('x) = 3e^{3x} + 2\cos(2x) - \frac{3x}{\sqrt{3x^2+1}}$.
   (b) $f'(x) = 2e^{2x}\sin x(\sin x + \cos x)$.
   (c) $f'(x)\lim_{h\to 0}\frac{3(x+h)^2 - 5(x+h) + 1 - (3x^2 - 5x + 1)}{h} = 6x - 5$.