

## 7 Math101 facit til 7.gang

7.1 Ja.

7.2 Nej.

7.3 Svaret er  $F(x) = \frac{3}{2}x^2 - 7x + \frac{25}{2}$ .

7.4 Svarene er:

$$\frac{1}{3}, \quad 0, \quad 2 \ln 2.$$

7.5 Svarene er:

$$\frac{1}{2}x^2 - x + c, \quad \frac{1}{3}x^3 + e^x + c, \quad -2 \cos(x) + c.$$

7.6 Svarene er:

$$0, \quad e^2 - e^{-1}, \quad -2.$$

7.7 Svarene er:

$$-x^{-1} - \frac{1}{3}e^{3x} + c, \quad e^x - 2 \ln(|x|) + c$$

7.8 Svarene er:

$$\frac{e^2 - 1}{2}, \quad \frac{124}{3}, \quad \cos(-1) - \frac{3}{2}.$$

7.9 Vi har at  $F'(x) = \frac{5}{7} \cdot \frac{14}{5}x^{\frac{9}{5}} = 2x^{\frac{9}{5}} = f(x)$ .

7.10 Svarene er:

$$x^3 + x^2 + c, \quad \frac{1}{2}e^{6x} - 3 \sin(x) + c, \quad x \ln(x) - x - 2x^{\frac{1}{2}} + c.$$

7.11 Svarene er:

$$2 \ln(|x|) + 2x^{\frac{3}{2}} + 2x^2 + c, \quad \frac{10}{11}x^{\frac{11}{8}} - \frac{1}{3}x^3 + c, \quad c.$$

7.12 Svaret er  $\frac{2}{3}$ .

7.13 Vi har at

$$-\int_b^a f(x) dx = -(F(a) - F(b)) = F(b) - F(a) = \int_a^b f(x) dx.$$

7.14 Vi har at

$$\int_a^c f(x) dx + \int_c^b f(x) dx = F(c) - F(a) + F(b) - F(c) = F(b) - F(a) = \int_a^b f(x) dx.$$