Høgskolen i Molde
Vitenskapelig høgskole i logistikk

1. Grunnleggende emner

Oppgaver fredag 7. august

"*MAT001 Forkurs i matematikk*", 2020

Problem 1.1 — potenser

a) Regn ut potensene

$$i)\quad 2^5 \tag{1.1}$$

$$ii)\quad 2^-3 \tag{1.2}$$

$$iii)\quad (2^2)^{-3} \tag{1.3}$$

$$iv)\quad \frac{2^3}{2^5} \tag{1.4}$$

$$v)\quad \frac{2^4 \cdot 3^4}{6^2} \tag{1.5}$$

$$vi)\quad \left(\frac{2}{3^2}\right)^{-2} \cdot \left(\frac{2^2}{3^3}\right) \tag{1.6}$$

$$vii)\quad \left(\frac{5}{2}\right)^{10} \cdot \left(\left(\frac{5}{4}\right)^5\right)^{-2} \tag{1.7}$$

$$viii)\quad \frac{5 \cdot (3^2 \cdot 10)^2}{3^2 \cdot 60^2} \tag{1.8}$$

$$ix)\quad 3 \cdot \left((2 \cdot 3)^{-1} \cdot \frac{1}{2^3}\right)^{-1} \cdot (3 \cdot 2^2)^{-2} \tag{1.9}$$

$$x)\quad \left(1 - 2 \cdot \left(\frac{2^4}{5}\right)^{-1} \cdot \frac{2^3}{5}\right)^{100} \tag{1.10}$$

$$xi)\quad \left(\left(\frac{2}{5^2}\right)^2 \left(\frac{6^3}{2^2}\left(\frac{2}{3}\right)^{-1}\right)^{-2}\right)^{-1} \tag{1.11}$$

$$xii)\quad \left(\frac{\left(2 \cdot \frac{3}{9} : 3\right)^{-2}}{\left(\frac{9}{4}\right)^2 \cdot \left(\frac{2}{5}\right)^{-1}}\right) \tag{1.12}$$

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Problem 1.2 — Kvadratrøtter

a) Regn ut og skriv svaret som kvadratrot eller n-te kvadratrot:

i) $9^{\frac{1}{2}}$ (1.13)

ii) $3^{\frac{3}{4}}$ (1.14)

iii) $(\sqrt{2})^{\frac{5}{2}}$ (1.15)

iv) $\left(\frac{\sqrt{2}\sqrt{3}}{\sqrt{12}}\right)^3$ (1.16)

v) $(\sqrt[12]{49})^3$ (1.17)

vi) $\left(\sqrt{\sqrt{\sqrt{\sqrt{2}}}}\right)^3$ (1.18)

vii) $72^{\frac{2}{3}}$ (1.19)

viii) $\sqrt{\sqrt[3]{4}}$ (1.20)

ix) $2\sqrt{4\sqrt{16}}$ (1.21)

x) $\left(\sqrt[3]{\frac{9}{\sqrt{2}}}\right)^2$ (1.22)

xi) $\sqrt{36+4x^2-24x}$ (1.23)

xii) $\sqrt{\frac{\sqrt{\sqrt[3]{11}}}{\sqrt[3]{\sqrt{11}}}}$ (1.24)

xiii) $(\sqrt[3]{-5})^{\frac{6}{3}}$ (1.25)

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