



INSTITUTO TECNOLÓGICO
SUPERIOR DE SAN ANDRÉS TUXTLA

INGENIERIA EN GESTIÓN
EMPRESARIAL

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CÁLCULO DIFERENCIAL
EJERCICIOS

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22/SEP/23

OPAK

Acrostico Matematicas

18/09/23

Jerarquia

Ecuación

Numeración

Negativo

Iguación

Fracción

Equivalencia

Radio

Cálculo

Operación

Binomio

Area

X Incógnita

Integrales

Natural

DPAK

Resolver y aplicar la distributiva

$$a) \left(\frac{-5}{3} \right) \left(\frac{3}{4} \right) \left(\frac{7}{2} - \frac{5}{3} \right)$$

$$= \left(\frac{7}{2} - \frac{5}{3} \right) = \frac{21 - 10}{6} = \frac{11}{6} = \left(\frac{5}{3} \right) \left(\frac{3}{4} \right) \left(\frac{11}{6} \right)$$

$$= \frac{-120 + 54 + 132}{72} = \frac{66}{72}$$

$$b) \frac{7}{2} - \left(-\frac{5}{3} + \frac{3}{4} \right) = \left(-\frac{5}{3} + \frac{3}{4} \right) = \frac{-20 + 9}{12} = -\frac{11}{12}$$

$$\frac{7}{2} - \left(-\frac{11}{12} \right) = \frac{7}{2} + \frac{11}{12} = \frac{42 + 11}{12} = \frac{53}{12}$$

$$\begin{array}{r} 2 \overline{) 12 \overline{) 2}} \\ 1 \overline{) 6 \overline{) 2}} \\ 1 \overline{) 3 \overline{) 2}} \\ 1 \overline{) 1} \end{array}$$

$$c) \frac{5}{3} \div \left[\frac{3}{4} \div \left(\frac{7}{2} - \frac{5}{3} \right) \right] = \left(\frac{7}{2} - \frac{5}{3} \right) = \frac{21 - 10}{6} = \frac{11}{6}$$

$$= \frac{5}{3} \div \left(\frac{3}{4} \div \frac{11}{6} \right) = \left(\frac{3}{4} \times \frac{6}{11} \right) = \frac{5}{3} \left(\frac{3}{2} \div \frac{11}{6} \right) =$$

$$\begin{array}{r} 4 \overline{) 6 \overline{) 2}} \\ 2 \overline{) 3 \overline{) 2}} \\ 1 \overline{) 3 \overline{) 3}} \\ 1 \overline{) 1} \end{array}$$

$$\left(\frac{3}{2} \div \frac{11}{6} \right) = \frac{9}{22} = \frac{9}{22} = \frac{5}{3} \div \frac{9}{22} = \left(\frac{5}{3} \right) \left(\frac{22}{9} \right)$$

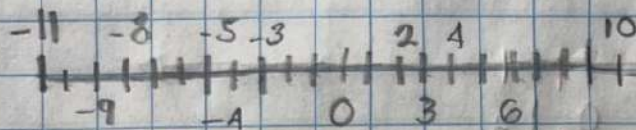
$$\frac{110}{27}$$

$$d) \frac{1}{2} \left(-\frac{4}{3} + \left(-\frac{7}{2} \right) \right) = \left(-\frac{1}{2} \right) \left(\frac{4}{3} \right) + \left(-\frac{1}{2} \right) \left(\frac{7}{2} \right)$$

$$= \frac{4}{6} + \frac{7}{4} = \frac{2}{3} + \frac{7}{4} = \frac{8 + 21}{12} = \frac{29}{12}$$

c) Situar los siguientes valores en la recta numérica.

-5, -3, 4, 3, 2, -8, -9, -11, 10, 6



Calcular los valores numéricos si

Si $a = 3$ $b = 4$ $c = 5$ y $x = 1$

a) $3a^2bc = 3(3)^2(4)(5) = (27)(20) = 540$

b) $4a^2 - b^2 = 4(3)^2 - (4)^2 = (36) - (16) = 20$

c) $(a+c)^2 = (3+5)^2 = (8)^2 = 64$

d) $(a+b)(a+b) = (3+4)(3+4) = (7)(7) = 49$

e) $\frac{4a+b}{c+3x} = \frac{4(3)+4}{5+3(1)} = \frac{12+4}{8} = \frac{16}{8} = 2$

d) $a+b(a+b) = 3+4(3+4) = 3+4(7) = 3+28 = 31$

Calculator si $x = 972$ y $\pi = 3.1416$

$$a) x^2 = (972)^2 = 944,784$$

$$b) \sqrt{x} = \sqrt{972} = 31.176914$$

$$c) x^3 = (972)^3 = 918,330,048$$

$$d) \sqrt[3]{x} = \sqrt[3]{972} = 9.905181$$

$$e) \frac{1}{x} = \frac{11}{972} = 0.001028$$

$$f) \pi x = (3.1416)(972) = 3,053,6352$$

$$g) \left(\frac{\pi}{4}\right)x^2 = (3.1416/4)(972)^2 = (0.7854)(944,784) = 742,033.3536$$

Product Rules

21/08/23

a) $x^4 x^5 = x^{4+5} = x^9$

b) $\frac{a^7}{a^2} = a^{7-2} = a^5$

c) $(t^{-2})^{-3} = t^6$

d) $\frac{a^3}{a^{10}} = a^{3-10} = a^{-7} = \frac{1}{a^7}$

e) $(abx)^5 = a^5 b^5 x^5$

f) $\left(\frac{x}{y}\right)^5 = \frac{x^5}{y^5}$

g) $[(x^2+1)^2]^{-5} = (x^2+1)^{-10}$

$$\frac{1}{(x^2+1)^{10}}$$

h) $x^{\frac{3}{2}} x^{-\frac{3}{5}} = x^{\frac{9}{10}}$

$$\frac{3}{2} - \frac{3}{5} = \frac{15-6}{10} = \frac{9}{10}$$

UPAK