

Math 103 Professor Katiraie Quiz One Form B Spring 2008

Name _____

Note: Show all work. Unless a problem is marked with an asterisk (*), use a calculator only to check.

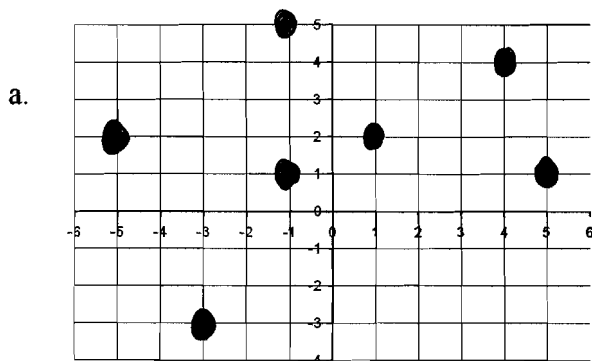
1. Simplify: (Assume no variables are equal to zero.) (Must Show Procedure) (4 points)

a. $\frac{72x^{-7}y^{-8}z^2}{3x^{-1}y^{-5}}$

b. $(2y^2w^{-2})^{-3}$

2. Simplify: $\left(\frac{x^{-3}y^{-6}z^{-2}}{x^5yz^{-4}}\right)^{-3}$ (Assume no variables are equal to zero.) (3 points)

3. Find the Domain and Range of the following: (2 points)



Domain:

Range:

b.

x	0	2	3	4	5
y	1	6	20	7	3

Domain:

Range:

4. Solve:

(2 points Each)

a) $3x - (-5x - 4) = -4(x + 7)$

b) $x^2 - 7x + 10 = 0$

5. For the line $5x - 4y = 12$, find the following:

(3 points)

a. slope

b. y-intercept

c. x-intercept

6) Evaluate with your calculator:

(2 points)

a. $\frac{-5 \pm \sqrt{132}}{6(11)}$

b. $5432.01\left(1 + \frac{0.042}{12}\right)^{12(14)}$ Assume this is a calculation involving money.

7. Solve the following algebraically $-3 - 5x = \frac{1}{6}x + 7$

(2 points)

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Note: Show all work. Unless a problem is marked with an asterisk (*), use a calculator only to check.

1. Simplify: $\left(\frac{x^{-3}y^{-6}z^{-2}}{x^5yz^{-4}}\right)^{-3}$ (Assume no variables are equal to zero.) (3 points)

$$\begin{aligned} (x^{-8}y^{-7}z^2)^{-3} &= x^{24}y^{21}z^{-6} \\ &= \frac{x^{24}y^{21}}{z^6} \end{aligned}$$

2. Simplify: (Assume no variables are equal to zero.) (Must Show Procedure) (4 points)

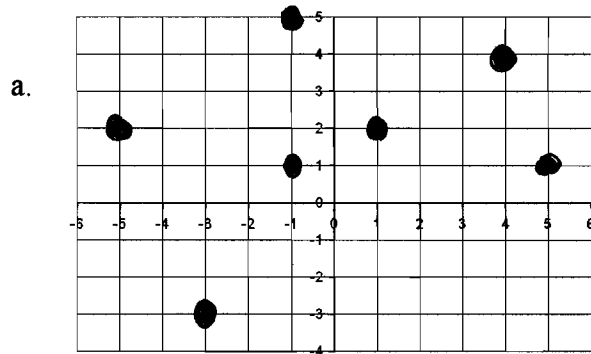
a. $\frac{72x^{-7}y^{-8}z^2}{3x^{-1}y^{-5}}$

$$\begin{aligned} &= 24x^{-7+1}y^{-8+5}z^2 \\ &= 24x^{-6}y^{-3}z^2 \\ &= \frac{24z^2}{x^6y^3} \end{aligned}$$

b. $(2y^2w^{-2})^{-3}$

$$\begin{aligned} &= 2^{-3}y^{-6}z^6 \\ &= \frac{z^6}{8y^6} \end{aligned}$$

3. Find the Domain and Range of the following: (2 points)



Domain: $\{-5, -3, -1, 1, 4, 5\}$

Range: $\{-3, 1, 2, 4, 5\}$

b.

x	0	2	3	4	5
y	1	6	20	7	3

Domain: $\{0, 2, 3, 4, 5\}$

Range: $\{1, 6, 7, 3, 20\}$

*4. Evaluate with your calculator:

(2 points)

a. $\frac{-5 \pm \sqrt{132}}{6(11)} = \begin{cases} \rightarrow \frac{-5 + \sqrt{132}}{66} = \boxed{0.098} \\ \rightarrow \frac{-5 - \sqrt{132}}{66} = \frac{-16.489}{66} = \boxed{-0.25} \end{cases}$

b. $5432.01(1 + \frac{0.042}{12})^{12(14)}$ Assume this is a calculation involving money.

$\$ 9769.67$

5. Solve the following algebraically $-3 - 5x = \frac{1}{6}x + 7$

(2 points)

Multiply by 6

$$-18 - 30x = x + 42$$

$$-31x = 42 + 18$$

$$-31x = 60$$

$$\Rightarrow \boxed{x = \frac{-60}{31}}$$

6) Solve:

(2 points Each)

a) $3x - (-5x - 4) = -4(x + 7)$

$$3x + 5x + 4 = -4x - 28$$

$$12x = -32$$

$$\boxed{x = -\frac{8}{3}}$$

b) $x^2 - 7x + 10 = 0$

$$(x - 5)(x - 2) = 0$$

$$\boxed{x = 5} \quad \boxed{x = 2}$$

7. For the line $5x - 4y = 12$, find the following:

(3 points)

a. slope

$$\boxed{m = \frac{5}{4}}$$

$$-4y = -5x + 12$$

$$\boxed{y = \frac{5}{4}x - 3}$$

b. y-intercept

$$(0, -3)$$

c. x-intercept

$$\left(\frac{12}{5}, 0\right)$$