

Math 103 Professor Katiraie Quiz One Form A

Name \_\_\_\_\_

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

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

$$(x^{-2} y^{-6} z^{+2})^{-3} = x^6 y^{18} z^{-6} = \frac{x^6 y^{18}}{z^6}$$

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

a.  $\frac{24x^{-5} y^{-8} z^2}{3xy^{-5}}$

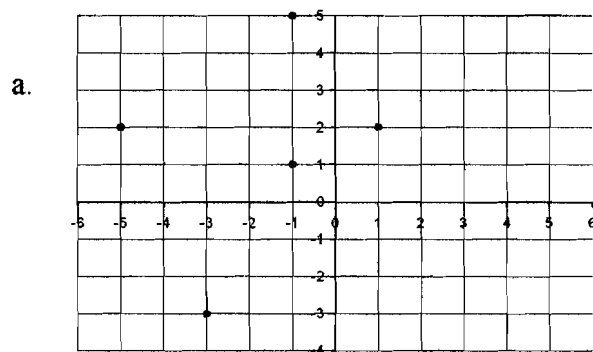
$$= 8x^{-6} y^{-8+5} z^2$$

$$= \frac{8z^2}{x^6 y^3}$$

b.  $(3yz^{-2})^{-3}$

$$\frac{1}{(3yz^{-2})^3} = \frac{1}{27y^3 z^{-6}} = \frac{z^6}{27y^3}$$

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



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

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

b.

x	1	2	3	4	5
y	1	6	3	3	3

Domain:  $\{1, 2, 3, 4, 5\}$

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

\*4. Evaluate with your calculator:

(2 points)

a.  $\frac{5 \pm \sqrt{129}}{6(14)}$   $\rightarrow 0.195$   
 $\rightarrow -0.0757$

b.  $5432.01(1 + \frac{0.042}{12})^{12(7)}$  Assume this is a calculation involving money.

~~\$~~ 7284.84

5. Solve the following algebraically  $3 - 5x = \frac{1}{4}x + 7$

(2 points)

$$12 - 20x = x + 28$$

$$-21x = 16$$

$$x = \frac{-16}{21}$$

Solve:

(2 points Each)

6.  $3x - (-2x - 5) = 4(x + 7)$

$$3x + 2x + 5 = 4x + 28$$

$$5x + 5 = 4x + 28$$

$$x = 23$$

7.  $t^2 - 4t - 12 = 0$

$$(t - 6)(t + 2) = 0$$

$$t = 6 \quad t = -2$$

8. For the line  $7x - 2y = 12$ , find the

(3 points)

a. slope =  $\frac{7}{2}$

$$-2y = -7x + 12$$

$$y = \frac{7}{2}x - 6$$

b. y-intercept  $(0, -6)$

c. x-intercept  $(\frac{12}{7}, 0)$

Math 103 Professor Katiraie Quiz One Form B

Name \_\_\_\_\_

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

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

$$(x^7 y^{-7} z^{-6})^{-2} = x^{-14} y^{14} z^{12} = \frac{y^{14} z^{12}}{x^{14}}$$

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

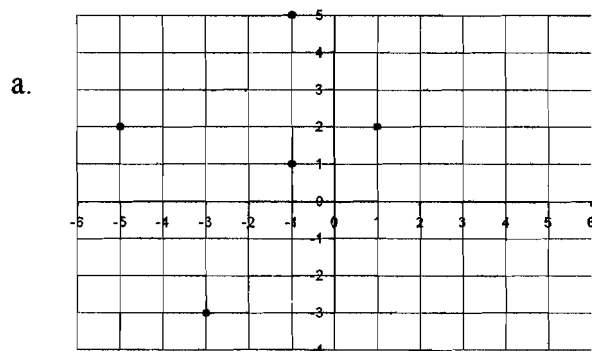
a.  $\frac{21x^5y^{-7}z^2}{3xy^{-3}z}$

$$= \frac{7x^4y^{-4}z^1}{y^4}$$

b.  $(2yz^{-2})^{-4}$

$$\frac{2^{-4}y^{-4}z^8}{16y^4} = \frac{z^8}{16y^4}$$

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



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

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

b.

x	1	2	3	4	5
y	1	6	3	3	3

Domain:  $\{1, 2, 3, 4, 5\}$

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

\*4. Evaluate with your calculator:

(2 points)

a.  $\frac{5 \pm \sqrt{120}}{6(13)}$   $\rightarrow 0.205$   
 $\rightarrow -0.076$

b.  $5435.01(1 + \frac{0.45}{12})^{12(8)}$  Assume this is a calculation involving money.

$\$ 7784.92$

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

(2 points)

$$\begin{array}{r} -15 - 25x = x + 35 \\ +15 - x \quad -x + 15 \\ \hline -26x = 50 \end{array} \Rightarrow x = \frac{50}{-26} = \boxed{-\frac{25}{13}}$$

Solve:

(2 points Each)

6.  $3x - (-2x - 5) = 5(x + 7)$

$$\begin{aligned} 3x + 2x + 5 &= 5x + 35 \\ 5x + 5 &= 5x + 35 \\ 5 &= 35 \end{aligned}$$

Undefined, No Solution

7.  $t^2 - 5t - 6 = 0$

$$(t - 6)(t + 1) = 0$$

$t = 6$     $t = -1$

8. For the line  $8x - 4y = 12$ , find the

(3 points)

a. slope = 2  $-4y = -8x + 12$

b. y-intercept  $(0, -3)$

$$y = \frac{-8x}{-4} + \frac{12}{-4} = 2x - 3$$

c. x-intercept  $(\frac{12}{8}, 0) = (\frac{3}{2}, 0)$