1	$x=4$; $y=-1$ ✓✓	15	$\frac{8}{ab^3}$ ✓
2	$x=1$; $y=-2$ ✓✓	16	$\frac{8a^4}{b^3}$ ✓
3	27.5, 42.5, 110 ✓✓	17	$\frac{1}{x^3y^6}$ ✓
4	$x=65$; $y=25$ ✓✓	18	$36x^4y^2$ ✓
5	$w=5$; $L=16$ ✓✓	19	$7x^2-11x+5$ ✓✓✓
6	$x=20$; $y=8$ ✓✓	20	x^2+x-9 ✓✓✓
7	$8x^5$ ✓	21	$6x^2+10x$ ✓✓
8	$3x^2$ ✓	22	$x^2+2x-35$ ✓✓✓
9	z^{15} ✓	23	$12x^2+17x-5$ ✓✓✓
10	$\frac{15}{x^2}$ ✓	24	x^2-36 ✓✓
11	$\frac{5}{x^4}$ ✓	25	$4x^2-5x+3$ ✓✓✓
12	$\frac{3}{x^4}$ ✓	26	$Q=x-2$ ✓ $R=-3$ ✓
13	$\frac{9a^5}{b^3}$ ✓	27	x^2-3x+9 ✓✓✓
14	$15x^2y^3$ ✓	28	Solutions

dq ✓

East Los Angeles College
Department of Mathematics
Math 115
Test 3

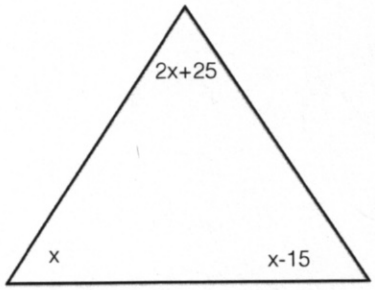
1. Solve the system by the Addition Method.

$$2x + y = 7$$
$$-x + 3y = -7$$

2. Solve the system by the Substitution Method.

$$2x - y = 4$$
$$x + y = -1$$

3. Determine the angles.



4. **Complementary Angles**- Two angles are complementary. If one angle measures 15 degrees more than twice the other angle, what is the measure of the angles?

5. **Rectangle-** The perimeter of a rectangle is 42 meters. If the length is one more than three times the width, what are the dimensions (length and width)?

6. **Ticket Mixture-** Adult tickets are sold for $7 and child tickets are sold for $4. If 28 tickets were sold for a total value of $ 172.00, how many of each type were sold?

Use properties of exponents to evaluate the following. Write as positive exponents:

7. $2x^3 \cdot 4x^2$

8. $\frac{15x^4}{5x^2}$

9. $(z^5)^3$

10. $5x^2 \cdot 3x^{-4}$

11. $\frac{20x}{4x^5}$

12. $\frac{12x^{-3}}{4x}$

13. $\frac{18a^4b^{-2}}{2a^{-1}b}$

14. $3xy^2 \cdot 5xy$

15. $4a^{-2}b \cdot 2ab^{-4}$

16. $\frac{16ab^{-2}}{2a^{-3}b}$

17. $(xy^2)^{-3}$

18. $(6x^3y)^2$

Add/Subtract the following polynomials

19. $(4x^2 - 5x - 2) + (3x^2 - 6x + 7)$

20. $(4x^2 - 5x - 2) - (3x^2 - 6x + 7)$

Multiply/Divide the following polynomials

21. $2x(3x + 5)$

22. $(x - 5)(x + 7)$

23. $(4x - 1)(3x + 5)$

24. $(x + 6)(x - 6)$

25. $\frac{8x^3 - 10x^2 + 6x}{2x}$

26. $\frac{x^2 - 6x + 5}{x - 4}$

27. $\frac{x^3 + 27}{x + 3}$

28. What is your name?

Math 115 Test 3

(1)

$$2x + y = 7$$
$$2(-x + 3y) = -7 \cdot 2$$

$$2x + y = 7$$
$$-2x + 6y = -14$$

$$7y = -7$$

$$\frac{7y}{7} = \frac{-7}{7}$$

$$y = -1$$

use back sub

$$2x + y = 7$$

$$2x - 1 = 7$$
$$+1 \quad +1$$

$$\frac{2x}{2} = \frac{8}{2}$$

$$x = 4$$

(2)

$$2x - y = 4$$
$$x + y = -1 \quad ; \quad x = -y - 1$$

$$2(-y - 1) - y = 4$$

$$-2y - 2 - y = 4$$

$$-3y - 2 = 4$$
$$+2 \quad +2$$

$$\frac{-3y}{-3} = \frac{6}{-3}$$

$$y = -2$$

use back sub

$$x = -y - 1$$

$$x = 2 - 1$$

$$x = 1$$

(3) $x + 2x + 25 + x - 15 = 180$

$4x + 10 = 180$

$-10 \quad -10$

$\frac{4x}{4} = \frac{170}{4}$ $\therefore x = 42.5$

42.5

$4 \overline{)170.}$

-16

10

-8

2.0

-20

0

i.e. $x - 15 = 42.5 - 15$

$= 27.5$

$2(42.5) + 25 = 110$

(4) $x + y = 90$

$x = 2y + 15$

$2y + 15 + y = 90$

$3y + 15 = 90$

$-15 \quad -15$

$\frac{3y}{3} = \frac{75}{3}$ $\therefore y = 25$

use back sub

$x = 2 \cdot 25 + 15$

$x = 50 + 15$

$x = 65$

(5) $P = 42$, $2L + 2W = 42$

$L = 3W + 1$

$2(3W + 1) + 2W = 42$

$6W + 2 + 2W = 42$

$8W + 2 = 42$

$-2 \quad -2$

$\frac{8W}{8} = \frac{40}{8}$; $W = 5$

$L = 3 \cdot 5 + 1$; $L = 15 + 1$; $L = 16$

(6)

	adult	child	
	type I 7	type II 4	total
Q	x	y	28
A	$7x$	$4y$	172

$x + y = 28$; $x = 28 - y$

$7x + 4y = 172$

use Sub

$7(28 - y) + 4y = 172$

$196 - 7y + 4y = 172$

$196 - 3y = 172$

$-196 \quad -196$

$\frac{-3y}{-3} = \frac{-24}{-3}$

$y = 8$ use backSub

$x = 28 - 8$

$x = 20$

(7) $2x^3 \cdot 4x^2$

$2 \cdot 4 \cdot x^3 \cdot x^2$

$8x^5$

(8) $\frac{15x^4}{5x^2}$

$3x^{4-2}$

$3x^2$

(9) $(z^5)^3$

z^{15}

(10) $5x^2 \cdot 3x^{-4}$

$5 \cdot 3 \cdot x^2 \cdot x^{-4}$

$15x^{-2}$

$\frac{15}{x^2}$

(11) $\frac{20x}{4x^5}$

$5x^{1-5}$

$5x^{-4}$

$\frac{5}{x^4}$

(12) $\frac{12x^{-3}}{4x^1}$

$3x^{-3-1}$

$3x^{-4}$

$\frac{3}{x^4}$

(13) $\frac{18a^4b^{-2}}{2a^{-1}b}$

$9a^{4--1}b^{-2-1}$

$9a^5b^{-3}$

$\frac{9a^5}{b^3}$

(14) $3xy^2 \cdot 5xy$

$3 \cdot 5 \cdot x \cdot xy^2 \cdot y$

$15x^2y^3$

(15) $4a^{-2}b \cdot 2ab^{-4}$

$4 \cdot 2 a^{-2} a \cdot b \cdot b^{-4}$

$8 a^{-2+1} b^{1-4}$

$8 a^{-1} b^{-3}$

$\frac{8}{ab^3}$

(16) $\frac{16ab^2}{2a^{-3}b}$

$8 a^{1-(-3)} b^{2-1}$

$8 a^4 b^3$

$\frac{8a^4}{b^3}$

(17) $(x^1 y^2)^{-3}$

$x^{-3} y^{-6}$

$\frac{1}{x^3 y^6}$

(18) $(6x^3y)^2$

$6^2 x^6 y^2$

$36 x^6 y^2$

(19) $(4x^2 - 5x - 2) + (3x^2 - 6x + 7)$

$4x^2 - 5x - 2 + 3x^2 - 6x + 7$

$7x^2 - 11x + 5$

(20) $(4x^2 - 5x - 2) - (3x^2 - 6x + 7)$

$4x^2 - 5x - 2 - 3x^2 + 6x - 7$

$x^2 + x - 9$

(21) $2x(3x+5)$

$6x^2+10x$

(22) $(x-5)(x+7)$

	x	7
x	x^2	$7x$
-5	$-5x$	-35

$x^2+2x-35$

(23) $(4x-1)(3x+5)$

	$3x$	5
$4x$	$12x^2$	$20x$
-1	$-3x$	-5

$12x^2+17x-5$

(24) $(x+6)(x-6)$

	x	-6
x	x^2	$-6x$
6	$6x$	-36

x^2-36

(25) $\dfrac{8x^3-10x^2+6x}{2x}$

$\dfrac{8x^3}{2x}-\dfrac{10x^2}{2x}+\dfrac{6x}{2x}$

$4x^2-5x+3$

(26)

$$\begin{array}{r} x-2 \\ x-4\overline{)\,x^2-6x+5} \\ -x^2+4x \\ \hline -2x+5 \\ +2x-8 \\ \hline -3 \end{array}$$

(27)

$$x+3 \overline{)\, x^3 + 0x^2 + 0x + 27}$$

$$x^2 - 3x + 9$$

$$-x^3 + 3x^2$$

$$-3x^2 + 0x$$

$$+3x^2 + 9x$$

$$9x + 27$$

$$-9x + 27$$

$$0$$