

East Los Angeles College
Department of Mathematics

Math 115

Test 4

Multiply or Divide the following.

1. $4x(x - 3)$

2. $(x - 5)(x + 4)$

3. $(2x - 5)(x + 4)$

4. $(x + 5)(x - 5)$

5. $\frac{x^2 - 5x + 7}{x + 3}$

6. $\frac{x^3 + 1}{x + 1}$

Factor out the Greatest Common Factor

7. $12x^4 + 10x$

8. $6x^5 - 2x^3$

Factor by Grouping

9. $x^3 + 2x^2 + 5x + 10$

10. $4x^3 - 6x^2 + 10x - 15$

Factor

11. $x^2 + 4x - 5$

12. $x^2 - 7x - 18$

13. $x^2 + 2x - 15$

14. $x^2 + x - 12$

15. $2x^2 - 5x - 3$

16. $4x^2 - 5x - 6$

17. $6x^2 + 19x + 3$

18. $3x^2 + 10x - 8$

19. $x^2 - 16$

20. $4x^2 - 1$

21. $x^3 + 27$

22. $27x^3 - 1$

Solve for x

23. $x^2 + 2x - 15 = 0$

24. $2x^2 - 5x - 3 = 0$

25. $x^2 - 25 = 0$

26. $x(x - 11) = -30$

27. $(x + 6)(x + 4) = 15$

28. What is your name?

Answer Sheet

1	$4x^2 - 12x$ ✓	10	$(2x-3)(2x^2+5)$ ✓	19	$(x+4)(x-4)$ ✓
2	$x^2 - x - 20$ ✓	11	$(x+5)(x-1)$ ✓	20	$(2x+1)(2x-1)$ ✓
3	$2x^2 + 3x - 20$ ✓	12	$(x-9)(x+2)$ ✓	21	$(x+3)$ $(x^2 - 3x + 9)$ ✓
4	$x^2 - 25$ ✓	13	$(x+5)(x-3)$ ✓	22	$(3x-1)$ $(9x^2 + 3x + 1)$ ✓
5	$x - 8 \frac{31}{x+3}$ ✓	14	$(x+4)(x-3)$ ✓	23	$x > -5$ ✓ $x > 3$ ✓
6	$x^2 - x + 1$ ✓	15	$(2x+1)(x-3)$ ✓	24	$x > -\frac{1}{2}$ ✓ $x > 3$ ✓
7	$2x(6x^3+5)$ ✓	16	$(4x+3)(x-2)$ ✓	25	$x > -5$ ✓ $x = 5$ ✓
8	$2x^3(3x^2-1)$ ✓	17	$(6x+1)(x+3)$ ✓	26	$x > 6$ ✓ $x = 5$ ✓
9	$(x+2)(x^2+5)$ ✓	18	$(3x-4)(x-2)$ ✓	27	$x = -9$ ✓ $x = -1$ ✓

84 ✓

math 11S Test 4

① $4x(x-3) = 4x^2 - 12x$

② $(x-5)(x+4) = x^2 - x - 20$

	x	4
x	x^2	$4x$
-5	$-5x$	-20

③ $(x+5)(x-5) = x^2 - 25$

	x	-5
x	x^2	$-5x$
5	$5x$	-25

④ $(3)(2x-5)(x+4) = 2x^2 + 3x - 20$

	x	4
$2x$	$2x^2$	$8x$
-5	$-5x$	-20

⑤ (5)

$$\begin{array}{r}
 x - 8 \\
 x + 3 \overline{) x^2 - 5x + 24} \\
 \underline{-x^2 + 3x} \\
 -8x + 24 \\
 \underline{+8x + 24} \\
 31
 \end{array}
 \quad \left| \begin{array}{r} x - 8 \\ \hline 31 \\ x + 3 \end{array} \right|$$

⑥

$$\begin{array}{r}
 x^2 - x + 1 \\
 x + 1 \overline{) x^3 + 0x^2 + 0x + 1} \\
 \underline{-x^3 + x^2} \\
 -x^2 + 0x + 1 \\
 \underline{+x^2 + x} \\
 x + 1 \\
 \underline{-x + 1} \\
 0
 \end{array}
 \quad \left(\begin{array}{r} x^2 - x + 1 \\ \hline \end{array} \right)$$

(7) $12x^4 + 10x$

$\underline{2x(6x^3 + 5)}$

(8) $6x^5 - 2x^3$

$\underline{2x^3(3x^2 - 1)}$

(9) $x^3 + 2x^2 + 5x + 10$

$x^2(x+2) + 5(x+2)$

$\underline{(x+2)(x^2+5)}$

(10) $4x^3 - 6x^2 + 10x - 15$

$2x^2(2x-3) + 5(2x-3)$

$\underline{(2x-3)(2x^2+5)}$

(11) $x^2 + 4x - 5$

$\underline{(x+5)(x-1)}$

(12) $x^2 - 7x - 18$

$\underline{(x-9)(x+2)}$

(13) $x^2 + 2x - 15$

$\underline{(x+5)(x-3)}$

(14) $x^2 + x - 12$

$\underline{(x+4)(x-3)}$

(15) $2x^2 - 5x - 3$

$\underline{(2x+1)(x-3)}$

(16) $4x^2 - 5x - 6$

$\underline{(4x+3)(x-2)}$

(17) $6x^2 + 19x + 3$

$\underline{(6x+1)(x+3)}$

(18) $3x^2 + 10x - 8$

$\underline{(3x-4)(x-2)}$

(19) $x^2 - 16$

$\underline{(x+4)(x-4)}$

(20) $4x^2 - 1$

$\underline{(2x+1)(2x-1)}$

$$(21) \quad x^3 + 27 = (x+3)(x^2 - 3x + 9)$$

$$(22) \quad \frac{27x^3 - 1}{(3x)^3 - 1^3} = \frac{(3x-1)((3x)^2 + 3x + 1^2)}{(3x-1)(9x^2 + 3x + 1)}$$

$$(23) \quad x^2 + 2x - 15 = 0$$

$$(x+5)(x-3) = 0$$

$$\begin{array}{l} x+5=0 \\ -5 \quad -5 \end{array}$$

$$x = -5$$

$$\begin{array}{l} x-3=0 \\ +3 \quad +3 \end{array}$$

$$x = 3$$

$$(25) \quad x^2 - 25 = 0$$

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

$$\begin{array}{l} x+5=0 \\ -5 \quad -5 \end{array}$$

$$x = -5$$

$$\begin{array}{l} x-5=0 \\ +5 \quad +5 \end{array}$$

$$x = 5$$

$$(26) \quad x(x-11) = -30$$

$$\begin{array}{l} x^2 - 11x = -30 \\ +30 \quad +30 \end{array}$$

$$x^2 - 11x + 30 = 0$$

$$(x-6)(x-5) = 0$$

$$\begin{array}{l} x-6=0 \\ +6 \quad +6 \end{array}$$

$$x = 6$$

$$\begin{array}{l} x-5=0 \\ +5 \quad +5 \end{array}$$

$$x = 5$$

$$(24) \quad 2x^2 - 5x - 3 = 0$$

$$(2x+1)(x-3) = 0$$

$$\begin{array}{l} 2x+1=0 \\ -1 \quad -1 \end{array}$$

$$2x = -1$$

$$x = -\frac{1}{2}$$

$$\begin{array}{l} x-3=0 \\ +3 \quad +3 \end{array}$$

$$x = 3$$

$$(27) (x+6)(x+4) = 15$$

$$x^2 + 6x + 4x + 24 = 15$$

$$x^2 + 10x + 24 = 15$$
$$\quad \quad -15 \quad -15$$

$$x^2 + 10x + 9 = 0$$

$$(x + 9)(x + 1) = 0$$

$$x + 9 = 0$$
$$\quad -9 \quad -9$$

$$(x \geq -9)$$

$$x + 1 = 0$$
$$\quad -1 \quad -1$$

$$(x \geq -1)$$