

NAME: _____ DATE: _____ PERIOD: _____

Algebra 1 Practice Assessment Covering: Chapter 6, Sections 6.1 - 6.7

SHOW YOUR WORK To Receive Credit, Including Applicable Partial Credit

Factor and write your answers on this sheet. Please show your work on each problem.

1. $5x^3 + 10$ (find GCF)
 $= 5 \cdot x \cdot x \cdot x + 2 \cdot 5$
 $= 5(x^3 + 2)$

2. $6x^3 + 12x^2$ (find GCF)
 $= 2 \cdot 3 \cdot x \cdot x \cdot x + 2 \cdot 2 \cdot 3 \cdot x \cdot x$
 $= 6x^2(x + 2)$

3. $8x^4y^3 - 6x^2y^4$ (find GCF)
 $= 2 \cdot 2 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot y \cdot y \cdot y - 2 \cdot 3 \cdot x \cdot x \cdot y \cdot y \cdot y$
 $= 2x^2y^3(4x^2 - 3y)$

4. $x^2 - 16$ (no GCF)
 $= x \cdot x - 4 \cdot 4$ (difference of squares)
 $= (x + 4)(x - 4)$

5. $25x^2 - 4$ (no GCF)
 $= 5x \cdot 5x - 2 \cdot 2$ (difference of squares)
 $= (5x + 2)(5x - 2)$

6. $25x^4 - 64y^2$ (no GCF)
 $= 5x^2 \cdot 5x^2 - 8y \cdot 8y$ (diff. of squares)
 $= (5x^2 + 8y)(5x^2 - 8y)$

7. $32x^2 - 50y^2$ (find GCF)
 $= 2(16x^2 - 25y^2)$
 $= 2(4x \cdot 4x - 5y \cdot 5y)$ (difference of squares)
 $= 2(4x - 5y)(4x + 5y)$

8. $x^2 + 10x + 25$ (no GCF)
 $= x \cdot x + 2 \cdot x \cdot 5 + 5 \cdot 5$ (trinomial squares)
 $= (x + 5)(x + 5)$
 $= (x + 5)^2$

9. $y^2 - 8y + 16$ (no GCF)
 $= y \cdot y + 2 \cdot y \cdot (-4) + (-4) \cdot (-4)$
 $= (y - 4)(y - 4)$ (trinomial squares)
 $= (y - 4)^2$

10. $2x^2 + 12x + 18$ (find GCF)
 $= 2(x^2 + 6x + 9)$
 $= 2(x \cdot x + 2 \cdot x \cdot 3 + 3 \cdot 3)$ (trinomial squares)
 $= 2(x + 3)(x + 3)$
 $= 2(x + 3)^2$

11. $x^2 + 8x + 12$ (no GCF)

	a-c	
	12	
2		6
	8	
	b	

$= (x + 2)(x + 6)$

12. $y^2 - 10y + 16$ (no GCF)

product	target sum
= 16	= -10
-1	-16
-2	-8
-4	-4
	sum = -17
	sum = -10
	sum = -8

$= (x - 2)(x - 8)$

13. $a^2 - 3ab - 10b^2$ (no GCF)

product	target sum
= -10	= -3
1	-10
2	-5
	sum = -9
	sum = -3

$= (a - 5b)(a + 2b)$

14. $x^2 + 3x - 4$ (no GCF)

	a-c	
	-4	
4		-1
	3	
	b	

$= (x + 4)(x - 1)$

15. $21x^2 + 13x + 2$ (no GCF)

	a-c	
	42	
6		7
	13	
	b	

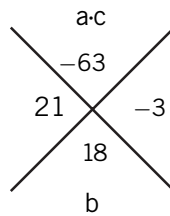
$= 21x^2 + 6x + 7x + 2$
 $= (21x^2 + 6x) + (7x + 2)$
 $= 3x(7x + 2) + 1(7x + 2)$
 $= (3x + 1)(7x + 2)$

16. $8x^2 + 14x + 3$ (no GCF)

product = 24	target sum = 14
1 24	sum = 25
2 12	sum = 14
3 8	sum = 11
4 6	sum = 10

$$\begin{aligned}
 &= 8x^2 + 2x + 12x + 3 \\
 &= (8x^2 + 2x) + (12x + 3) \\
 &= 2x(4x + 1) + 3(4x + 1) \\
 &= (2x + 3)(4x + 1)
 \end{aligned}$$

17. $18x^2 + 36x - 14$ (find GCF)
 $2[9x^2 + 18x - 7]$



$$\begin{aligned}
 &= 2[9x^2 + 21x - 3x - 7] \\
 &= 2[(9x^2 + 21x) + (-3x - 7)] \\
 &= 2[3x(3x + 7) + -1(3x + 7)] \\
 &= 2(3x - 1)(3x + 7)
 \end{aligned}$$

18. $2x^3 + 6x^2 + x + 3$ (no GCF)
 $= (2x^3 + 6x^2) + (x + 3)$
 $= 2x^2(x + 3) + 1(x + 3)$
 $= (2x^2 + 1)(x + 3)$

19. $4a^3 + 10a^2 + 6a + 15$ (no GCF)
 $= (4a^3 + 10a^2) + (6a + 15)$
 $= 2a^2(2a + 5) + 3(2a + 5)$
 $= (2a^2 + 3)(2a + 5)$

20. $5x^4 - 5x^3 - x + 1$ (no GCF)
 $= (5x^4 - 5x^3) + (-x + 1)$
 $= 5x^3(x - 1) + -1(x - 1)$
 $= (5x^3 - 1)(x - 1)$

21. $2x^3 + 2x^2 - 8x - 8$ (find GCF)
 $= 2[x^3 + x^2 - 4x - 4]$
 $= 2[(x^3 + x^2) + (-4x - 4)]$
 $= 2[x^2(x + 1) + -4(x + 1)]$
 $= 2(x^2 - 4)(x + 1)$

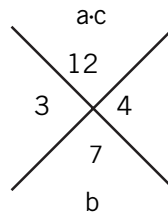
22. $14a^4 - 14a^2$ (find GCF)
 $= 2 \cdot 7 \cdot a \cdot a \cdot a \cdot a - 2 \cdot 7 \cdot a \cdot a$
 $= 14a^2(a^2 - 1)$
 $= 14a^2[a \cdot a - 1 \cdot 1]$ (difference of squares)
 $= 14a^2(a - 1)(a + 1)$

23. $x^8 - 1$ (no GCF)
 $= x^4 \cdot x^4 - 1 \cdot 1$ (difference of squares)
 $= (x^4 - 1)(x^4 + 1)$ (diff. of squares)
 $= (x^2 - 1)(x^2 + 1)(x^4 + 1)$ (diff. of squares)
 $= (x - 1)(x + 1)(x^2 + 1)(x^4 + 1)$

24. $12x^3 - 21x^2 + 8x - 14$ (no GCF)
 $= (12x^3 - 21x^2) + (8x - 14)$
 $= 3x^2(4x - 7) + 2(4x - 7)$
 $= (3x^2 + 2)(4x - 7)$

25. $3x^4 + 30x^3 + 75x^2$ (find GCF)
 $= 3x^2[x^2 + 10x + 25]$
 $= 3x^2(x \cdot x + 2 \cdot x \cdot 5 + 5 \cdot 5)$ (trinomial squares)
 $= 3x^2(x + 5)(x + 5)$
 $= 3x^2(x + 5)^2$

26. $2a^4 + 14a^3 + 24a^2$ (find GCF)
 $= 2a^2[a^2 + 7a + 12]$



$$= 2a^2(a + 3)(a + 4)$$