

Name: SOLUTIONS Date: _____ Period: _____

Unit 30 Review Factoring

Factor out the GCF

1. $32x^2y^8 + 8x^3y^5$

$8x^2y^5$

2. $-8x^3 + 4x^2$

$4x^2$

3. $60m^2n^5 + 12m^2n^6 + 18m^4n^6$

$6m^2n^5$

4. $50x - 45$

5

5. $3x^2 - x$

x

Identify and factor the following special polynomials.

6. $16p^2 - 25$ DIFFERENCE OF TWO SQUARES

$(4p - 5)(4p + 5)$

7. $4x^2 + 10x + 25$ PERFECT SQUARES TRINOMIAL

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

8. $4x^2 - 1$ DIFFERENCE OF TWO SQUARES

$(2x + 1)(2x - 1)$

9. $16x^2 - 12x + 36$ PERFECT SQUARE TRINOMIAL

$(4x - 3)(4x - 6)$
 $(4x - 6)^2$

Factor completely

10. $x^2 - 12x + 35$

$x \quad -7$

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

 $(x - 7)(x - 5)$

$35 \quad -12$

m	s
$-7(-5)$	$-5 + -7 = -12$

11. $n^2 + 9n - 10$

$n \quad -1$

n^2	$-1n$
$10n$	-10

 $-10 \quad 9$

m	s
-10	9
-10	$-1 + 10$

$(n + 10)(n - 1)$

Factor Completely

12. $3m^2 + 6m + 3$

$3(m^2 + 2m + 1)$

	m	$+1$	
m	m^2	$1m$	
$+1$	$1m$	1	

1	2
m	S
$1(1)$	$1+1$

$3(m+1)(m+1)$
 $3(m+1)^2$

13. $2p^2 + 18p + 16$

$2(p^2 + 9p + 8)$

	p	$+8$	
p	p^2	$8p$	
$+1$	$1p$	8	

8	9
m	S
$8(1)$	$8+1$

$2(p+8)(p+1)$

14. $2n^2 + 3n - 9$

	n	3	
$2n$	$2n^2$	$6n$	
-3	$-3n$	-9	

-18	3
m	S
$6(-3)$	$6+(-3)$

$(2n-3)(n+3)$

15. $5n^2 + 19n + 12$

	n	$+3$	
$5n$	$5n^2$	$15n$	
$+4$	$4n$	12	

60	19
m	S
$15(4)$	$15+4$

$(5n+4)(n+3)$

16. $2n^2 + 5n + 2$

	n	$+2$	
$2n$	$2n^2$	$4n$	
$+1$	$1n$	2	

4	5
m	S
$4(1)$	$4+1$

$(n+2)(2n+1)$

17. $3k^2 + 34k + 63$

	k	9	
$3k$	$3k^2$	$27k$	
$+7$	$7k$	63	

189	34
m	S
$27(7)$	$27+7$

$(3k+7)(k+9)$

18. $4n^2 - 45n + 50$

	n		
$4n$	$4n^2$		
			50

100	-45
m	S

19. $42x^2 + 204x + 144$

$6(7x^2 + 34x + 24)$

	x	4	
$7x$	$7x^2$	$28x$	
6	$6x$	24	

168	34
m	S
$28(6)$	$28+6$

$6(7x+6)(x+4)$

Factor Completely by Grouping

20. $20x^3 + 16x^2 - 5x - 4$

$4x^2$	$20x^3$	$16x^2$	
-1	$-5x$	-4	↑ GCF

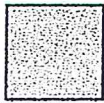
$(4x^2 - 1)(5x + 4)$

21. $10x^3 + 35x^2 - 12x - 42$

$5x^2$	$10x^3$	$35x^2$	42
-6	$-12x$	-42	$(5x^2 - 6)(2x + 7)$

The given expression represents the area. Find the side length of the square.

22.



$64x^2 + 80x + 25$

PERFECT SQUARE

$(8x + 5)(8x + 5)$

$L = (8x + 5)$

23.



$9y^2 - 24y + 16$

PERFECT SQUARE

$(3y - 4)(3y - 4)$

$L = (3y - 4)$

24.



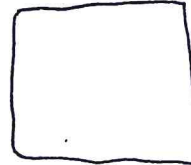
$4t^2 + 36t + 81$

$(2t + 9)(2t + 9)$

$L = (2t + 9)$

PERFECT SQUARE

24. The area of a square parking lot is $49p^4 - 84p^2 + 36$. Find the length of the parking lot.



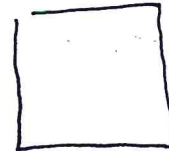
PERFECT SQUARE

$49p^4 - 84p^2 + 36$

$(7p^2 - 6)(7p^2 - 6)$

$L = (7p^2 - 6)$

26. A fabric designer is making a checked pattern. Each square in the pattern has an area of $x^2 - 16x + 64$. What is the length of one side of a check?



PERFECT SQUARE

$x^2 - 16x + 64$

$(x - 8)(x - 8)$

$L = (x - 8)$

27. A mosaic is made of small square tiles called tesserae. Suppose the area of one tesserae is $9x^2 + 12x + 4$. What is the length of one side of a tesserae?



PERFECT SQUARE

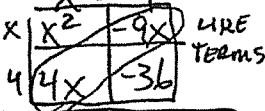
$9x^2 + 12x + 4$

$(3x + 2)(3x + 2)$

$L = (3x + 2)$

EOC Prep

28. Which expression is equivalent to $(x + 4)(x - 9)$ *x*



- A. $x^2 + 5x - 13$ C. $x^2 - 5x - 36$
 B. $x^2 - 13x - 36$ D. $x^2 - 13x - 5$

29. Simplify the product $4x(5x^2 + 3x + 7)$. What is the coefficient of the x^2 term?

DISTRIBUTE
 $4x(5x^2 + 3x + 7)$
 $20x^3 + 12x^2 + 28x$

- A. 20 C. $20x^2$
 B. 12 D. 28

30. What is the solution to the equation $7x - 11 = 3$

$$7x - 11 = 3$$

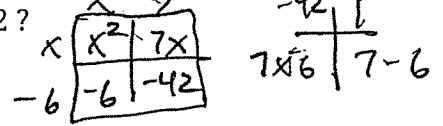
$$+11 \quad +11$$

$$7x = 14$$

$$\frac{7x}{7} = \frac{14}{7}$$

$$x = 2$$

31. What is the factored form of $x^2 + x - 42$?



- A. $(x - 7)(x - 6)$ C. $(x - 7)(x + 6)$
 B. $(x + 7)(x - 6)$ D. $(x + 7)(x + 6)$

32. What is the missing value in the statement

$$7x^2 - 61x - 18 = (7x + 2)(x - \square) ?$$

- A. 9 C. -126
 B. 126 D. -9

33. A museum charges an admission price of \$12 per person when you buy tickets online. There is also a \$5 charge per order. You spend \$65 purchasing p tickets online. Which equation best represents this situation?

$$12p + 5 = 65$$

- A. $12p + 5 = 65$ C. $5p + 12 = 65$
 B. $12p - 5 = 65$ D. $65p + 12 = 5$