

Factor each of the following expressions. Remember to GCF first!

10.  $6x^3 + 15x^2$   
 GCF ONLY  $3x^2(2x+5)$

11.  $8x^4 + 12x^3 - 16x^2$   
 GCF ONLY  $4x^2(2x^2 + 3x - 4)$

12.  $x^2 + 9x + 20$   
 $(x+5)(x+4)$

13.  $x^2 + 7x - 30$   
 $(x+10)(x-3)$

14.  $x^2 - 49$   
 $(x+7)(x-7)$

15.  $x^2 + 10x + 25$   
 $(x+5)(x+5)$  or  $(x+5)^2$

16.  $x^2 - 4x - 32$   
 $(x-8)(x+4)$

17.  $3x^2 - 24x + 36$   
 $3(x^2 - 8x + 12)$   
 $3(x-6)(x-2)$

18.  $2x^2 + 11x + 5$   
 $(x + \frac{1}{2})(x + \frac{10}{2})$   
 $(2x+1)(x+5)$   
 $\frac{10}{2, 5}$   
 $?, 5$

19.  $4x^2 - 64$   
 $4(x^2 - 16)$   
 $4(x+4)(x-4)$

20.  $3x^2 + 16x + 21$   
 $(x + \frac{7}{3})(x + \frac{9}{3})$   
 $(3x+7)(x+3)$   
 $\frac{63}{1, 63}$   
 $3, 21$   
 $?, 9$

21.  $5x^2 - 7x - 6$   
 $(x - \frac{10}{5})(x - \frac{3}{5})$   
 $(x-2)(5x-3)$   
 $-30$   
 $1, 30$   
 $2, 15$   
 $3, 10$

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Unit 4 Review**

**Add**

1.  $(2x^2 - x - 6) + (7x^2 - 8x - 4)$

$9x^2 - 9x - 10$

2.  $(2x^2 - x - 6) - (7x^2 - 8x - 4)$  DISTRIBUTE THE NEGATIVE

$-7x^2 + 8x + 4$   
 $-5x^2 + 7x - 2$

**Multiply**

3.  $2x^2(3x^3 + 5x^2 - 9x)$

$6x^5 + 10x^4 - 18x^3$

4.  $(5x - 6)(9x - 3)$

$45x^2 - 15x - 54x + 18$   
 $45x^2 - 20x + 18$

**Multiply**

5.  $7x^2(8x^4 + 2)$

$56x^6 + 14x^2$

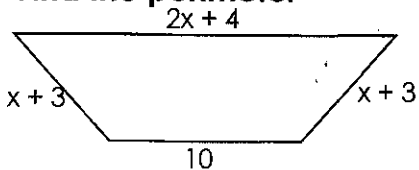
6.  $(x + 6)^2$   
 $(x + 6)(x + 6)$

$x^2 + 6x + 6x + 36$   
 $x^2 + 12x + 36$

7.  $(x - 9)(x + 5)$

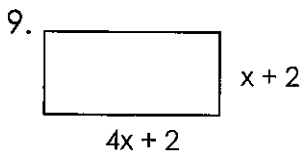
$x^2 + 5x - 9x - 45$   
 $x^2 - 4x - 45$

8. Find the perimeter



$2x + 4 + x + 3 + 10 + x + 3$   
 $4x + 20$

Find the area.



$(4x + 2)(x + 2)$   
 $4x^2 + 8x + 2x + 4$   
 $4x^2 + 10x + 4$

22.  $4x^2 - 10x + 6$

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

$2(x - \frac{3}{2})(x - \frac{1}{2})$

$2(2x - 3)(x - 1)$

6  
1, 6  
2, 3

23.  $6x^2 - 18x - 24$

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

$6(x - 4)(x + 1)$

24.  $9x^2 - 12x + 4$

$(x - \frac{6}{9})(x - \frac{6}{9})$

$(x - \frac{2}{3})(x - \frac{2}{3})$

$(3x - 2)(3x - 2)$

36  
1, 36  
2, 18  
3, 12  
4, 9  
6, 6

25.  $x^4 - 81$

$(x^2 + 9)(x^2 - 9)$

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

26. The area of a rectangle is  $(8x^2 + 8x + 2)$  cm<sup>2</sup>. The width is  $(2x + 1)$  cm. What is the length of the **rectangle**?

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

$2(x + \frac{2}{2})(x + \frac{2}{2})$

~~$2(2x + 1)$~~   
 $2(x + \frac{1}{2})(x + \frac{1}{2})$

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

THE LENGTH IS  $2(2x + 1)$   
OR  $4x + 2$

27. The area of a square is  $(9x^2 + 24x + 16)$  in<sup>2</sup>. What expression represents the length of a side of the **square**?

$(x + \frac{12}{9})(x + \frac{12}{9})$

$(x + \frac{4}{3})(x + \frac{4}{3})$

$(3x + 4)(3x + 4)$

WHAT MULTIPLIES TO GET 144 AND  
ADDS TO GET 24

1, 144

2, 72

3, 48

4, 36

6, 24

8, 18

9, 16

ONE LENGTH IS  $3x + 4$

$(12, 12)$

