

Name: _____

Period: _____

GCF, Grouping, & Difference of Squares Review

Factor each of the following completely

1) $27x^2 + 9y^2$

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

2) $9 - 3y - 15y^2$

$$3(3 - y - 5y^2)$$

3) $x^2 - 16$

$$(x-4)(x+4)$$

4) $4x^2 - 25$

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

5) $(ay^2 + 3ay)(+ 3y + 9)$

$$ay(y+3) + 3(y+3)$$

$$(ay+3)(y+3)$$

7) $9y^2 - 4v^2$

$$(3y-2v)(3y+2v)$$

9) $49x^2 - 4y^2$

$$(7x-2y)(7x+2y)$$

★GCF

6) $8p^2 - 16pq + 8pr - 16qr$

$$8[p^2 - 2pq + pr - 2qr]$$

$$8[p(p-2q) + r(p-2q)]$$

$$8(p+r)(p-2q)$$

8) $(3x^2 + x^3)(-18 - 6x)$

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

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

not
diff. of
squares

10) $81x^4 - 121y^8$

$$(9x^2 - 11y^4)(9x^2 + 11y^4)$$

$$11) 64a^2 - 25b^2$$

$$(8a - 5b)(8a + 5b)$$

$$12) 40x^8y^6 - 16x^9y^5$$

$$8x^8y^5(5y - 2x)$$

$$13) 5x^2 - 45$$

$$5(x^2 - 9)$$

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

$$14) 12x + 5y + 6xy + 10$$

↖ reorder!

$$12x + 6xy + 5y + 10$$

$$6x(2+y) + 5(y+2)$$

$$(6x+5)(y+2)$$

$$15) (30 + 5y^2)(-6x - xy^2)$$

$$5(6 + y^2) - x(6 + y^2)$$

$$(5-x)(6+y^2)$$

$$16) (4ax - 4ab)(2b^2 - 2bx)$$

$$4a(x-b) - 2b(-b+x)$$

$$\text{GCF of 2} \rightarrow (4a-2b)(x-b)$$

$$2(2a-b)(x-b)$$

$$17) -9a^2b + 18a^2b^2 - 3a$$

$$-3a(3ab - 6ab^2 + 1)$$

or

$$3a(-3ab + 6ab^2 - 1)$$

$$18) -15x^3 + 10x^2$$

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

or

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

$$19) 10x^2 - 12y + 15x - 8xy$$

$$10x^2 + 15x - 12y - 8xy$$

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

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

$$20) (y^3 + y^2z)(-9y - 9z)$$

$$y^2(y+z) - 9(y+z)$$

$$\star (y^2 - 9)(y+z)$$

$$(y+3)(y-3)(y+z)$$