

Foundations of Math 2

Review for Factoring Quiz

Name Key

Per/Sec. \_\_\_\_\_ Score \_\_\_/\_\_\_

Factor.

1.  $5a - 35$

$$5(a-7)$$

2.  $4x^2 - 7x^3$

$$x^2(4-7x)$$

3.  $4a^3 - 2a^2b$

$$2a^2(2a-b)$$

4.  $c^2 - 16$

$$(c-4)(c+4)$$

5.  $36m^3 + 30m^2 - 66m$

$$6m(m^2 + 5m - 11)$$

$\frac{6m(m+1)(m-6)}{6 \quad 6}$

$$6m(m^2 + 5m - 6)$$

$6m(m+1)(m-1)$

6.  $12k^3 + 21k^5$

$$3k^3(4+7k^2)$$

7.  $x^2 - 225$

$$(x-15)(x+15)$$

8.  $16 - r^2$

$$(4-r)(4+r)$$

9.  $c^2 - 36d^2$

$$(c-6d)(c+6d)$$

10.  $a^2 - 100$

$$(a-10)(a+10)$$

11.  $x^4 - 49$

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

12.  $25p^2 - 81$

$$(5p-9)(5p+9)$$

13.  $81p - p^3$

$$p(81 - p^2)$$

$$p(9-p)(9+p)$$

14.  $y^2 + 7y + 10$

$$(y+2)(y+5)$$

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15.  $x^2 - 8x + 15$

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

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16.  $x^2 + x - 30$

$$(x+6)(x-5)$$

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17.  $x^2 - 18x + 81$

$$(x-9)(x-9)$$

$$\text{or } (x-9)^2$$

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18.  $p^2 - 4p - 21$

$$(p-7)(p+3)$$

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19.  $a^3 - 11a^2 + 28a$

$$a(a^2 - 11a + 28)$$

$$a(a-7)(a-4)$$

20.  $2x^2 + 20x + 42$

$$2(x^2 + 10x + 21)$$

$$2(x+3)(x+7)$$

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21.  $3x^2 - 10x + 7$

$$x^2 - 10x + 21$$

$$(x-\frac{3}{3})(x-\frac{7}{3})$$

$$(x-1)(3x-7)$$

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22.  $3z^2 + 8z - 11$

$$z^2 + 8z - 33$$

$$(z+\frac{11}{3})(z-\frac{3}{3})$$

$$(3z+11)(z-1)$$

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23.  $5y^2 - 14y - 3$

$$y^2 - 14y - 15$$

$$(y-\frac{15}{5})(y+\frac{1}{5})$$

$$(y-3)(5y+1)$$

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24.  $15y^2 - y - 2$

$$y^2 - y - 30$$

$$(y-\frac{6}{15})(y+\frac{5}{15})$$

$$(y-\frac{2}{5})(y+\frac{1}{3})$$

$$\rightarrow (5y-2)(3y+1)$$

1. Common factors:

a.  $4x^2y^3 + 6x^5y^2 - 10x^4y^7$

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

b.  $12x^5y^2 - 18x^2y + 21x^4y^3$

$3x^2y(4x^3y - 6 + 7x^2y^2)$

2. Difference of 2 squares:

a.  $x^2 - 49$

$(x-7)(x+7)$

b.  $x^2 - 81$

$(x-9)(x+9)$

c.  $4x^2 - 25y^2$

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

d.  $9x^2 - 16$

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

3. Trinomials (a = 1):

a.  $x^2 - 5x - 24$

$(x-8)(x+3)$

b.  $x^2 + 6x - 16$

$(x+8)(x-2)$

c.  $x^2 + 10x + 9$

$(x+9)(x+1)$

d.  $x^2 - 17x + 30$

$(x-15)(x-2)$

4. Trinomials (a ≠ 1):

a.  $3x^2 + 7x + 2$   
 $x^2 + 7x + 6$   
 $(x+6)(x+1)$   
 $\frac{3}{3} \quad \frac{3}{3}$

$(x+2)(3x+1)$

b.  $4x^2 - 11x + 7$   
 $x^2 - 11x + 28$   
 $(x-7)(x-4)$   
 $\frac{4}{4} \quad \frac{4}{4}$

$(4x-7)(x-1)$

c.  $6x^2 - 7x - 10$   
 $x^2 - 7x - 60$   
 $(x-12)(x+5)$   
 $\frac{6}{6} \quad \frac{6}{6}$

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

d.  $3x^2 - 2x - 8$   
 $x^2 - 2x - 24$   
 $(x-6)(x+4)$   
 $\frac{3}{3} \quad \frac{3}{3}$

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

5. Mixture with GCF's to pull out first:

a.  $2x^2 + 10x - 28$

$2(x^2 + 5x - 14)$

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

b.  $3x^2 - 12x - 63$

$3(x^2 - 4x - 21)$

$3(x-7)(x+3)$

c.  $4x^2 - 10x - 24$

$2(2x^2 - 5x - 12)$

$2(x^2 - 5x - 24)$

$2(x-8)(x+3)$   
 $\frac{2}{2} \quad \frac{2}{2}$

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

d.  $15x^2 + 6x - 9$

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

$3(x+1)(5x-3)$

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

$3(x+5)(x-3)$   
 $\frac{3}{3} \quad \frac{3}{3}$

e.  $4x^2 - 100$

$4(x^2 - 25)$

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

f.  $3x^2 + 15$

$3(x^2 + 5)$

6. Total mixture of everything:

a.  $x^2 + 12x - 45$

$(x+15)(x-3)$

b.  $\overbrace{6x^2 + 5x - 6}^{(2x+3)(3x-2)}$  c.  $2x^2 - 98$

$x^2 + 5x - 36$

$(x+\frac{9}{6})(x-\frac{4}{6})$

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

$2(x^2 - 49)$

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

d.  $2a^3b^2 - 16a^2b^3 + 8ab$

$2ab(a^2b - 8ab^2 + 4)$

e.  $5ax^2 - 20ay^2$

$5a(x^2 - 4y^2)$

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

f.  $9x^2 - 25y^2$

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

h.  $x^2 - x - 56$

$(x-8)(x+7)$

i.  $8x^2 + 10x - 12$

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

$2(x^2 + 5x - 24)$

$2(x+\frac{8}{4})(x-\frac{3}{4})$

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

j.  $x^2 - 9x - 36$

$(x-12)(x+3)$

l.  $\overbrace{3x^2 + 8x + 4}$

$x^2 + 8x + 12$

$(x+\frac{6}{3})(x+\frac{2}{3})$

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