

How would you factor this?

$$4r^2 + 7r - 2$$

Sign on larger factor

same \oplus
diff \ominus

1st x last mult	middle add
-8	+7
-1 x +8	
-2 x +4	

Rewrite middle term using factors

$$= 4r^2 - 1r + 8r - 2$$

factor GCF out of first 2 terms
factor out GCF

$$\left. \begin{array}{l}
 4r^2 + 8r - 1r - 2 \\
 4r(r+2) - 1(r+2) \\
 (r+2)(4r-1)
 \end{array} \right\}$$

$$= r(4r-1) + 2(4r-1)$$

$$= (4r-1)(r+2)$$

Check GCF

$$6n^2 - 6n - 120$$

$$6(n^2 - n - 20)$$

Simple trinomial
mult | add

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

-20	-1
+1x-20	
+2x-10	
+4x-5	

3.6 Polynomials of the Form $ax^2 + bx + c$

Homework

solutions on next page

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13. Factor. Check by expanding.

a) $2y^2 + 5y + 2$

$$2y^2 + 4y + 1y + 2$$

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

$$2y(y + 2) + 1(y + 2)$$

$$(y + 2)(2y + 1)$$

b) $2a^2 + 11a + 12$

$$2a^2 + 8a + 3a + 12$$

$$(2a^2 + 8a) + (3a + 12)$$

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

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

c) $2k^2 + 13k + 15$

$$2k^2 + 10k + 3k + 15$$

$$(2k^2 + 10k) + (3k + 15)$$

$$2k(k + 5) + 3(k + 5)$$

$$(k + 5)(2k + 3)$$

d) $2m^2 - 11m + 12$

$$2m^2 - 8m - 3m + 12$$

$$(2m^2 - 8m) - (3m - 12)$$

$$2m(m - 4) - 3(m - 4)$$

$$(m - 4)(2m - 3)$$



Videos

Khan

Factoring By Asterisk Method

Factoring By Australian Method

$$6x^2 + 1x - 35$$

$$6 \times 35$$

$$210$$

$$-1 \quad x^2 \quad 10$$

$$-2 \quad x^2 \quad 105$$

$$-3 \quad x^2 \quad 70$$

$$-5 \quad x^2 \quad 22$$

$$-6 \quad x^2 \quad 35$$

$$-7 \quad x^2 \quad 30$$

$$-10 \quad x^2 \quad 21$$

$$-14 \quad x^2 \quad 15$$

$$\frac{(6x-14)(6x+15)}{6}$$

$$\frac{2(3x-7) \cdot 3(2x+5)}{6}$$

$$= (3x-7)(2x+5)$$

$$6x^2 - 14x + 5: -35$$

$$2x(3x-7) + 5(3x-7)$$

$$(2x+5)(3x-7)$$

3.6 Polynomials of the Form $ax^2 + bx + c$

Homework

#1, 2, 4, 5, 6, 7

Work sheet

Questions : ~~1-10~~

next page

1) $6m^2 + 2m - 8$

$2(3m^2 + 1m - 4)$

Hard trinomial
 mult 1st x last } add middle
 -12 } $+1$
 -1×12
 -2×6
 -3×4

$2(3m^2 - 3m + 4m - 4)$

$2[3m(m-1) + 4(m-1)]$

$2(m-1)(3m+4)$

,

Check

- 1) GCF
- 2) Simple Trinomial
- 3) Hard Trinomial

Extra practice

Math 10B

Name _____

Factoring: Hard Trinomials

Date _____

Factor each completely.

1) $6m^2 + 2m - 8$

2) $3x^2 - 16x + 5$

3) $28r^2 - 116r + 16$

4) $2n^2 - 17n - 9$

5) $3r^2 + 2r - 16$

6) $5a^2 - 34a + 45$

7) $8x^2 - 50x + 50$

8) $4n^2 - 15n + 9$

9) $4x^2 + 17x + 4$

10) $4m^2 + 13m + 10$

11) $4b^2 - 3b - 10$

12) $8n^2 - 26n - 24$

13) $u^2 + 16uv + 64v^2$

14) $2x^2 - 22xy + 48y^2$

15) $x^2 - 11xy + 30y^2$

16) $4a^2 - 8ab - 12b^2$

Answers to Factoring: Hard Trinomials (ID: 1)

1) $2(3m + 4)(m - 1)$

2) $(3x - 1)(x - 5)$

3) $4(7r - 1)(r - 4)$

4) $(2n + 1)(n - 9)$

5) $(3r + 8)(r - 2)$

6) $(5a - 9)(a - 5)$

7) $2(x - 5)(4x - 5)$

8) $(n - 3)(4n - 3)$

9) $(x + 4)(4x + 1)$

10) $(m + 2)(4m + 5)$

11) $(b - 2)(4b + 5)$

12) $2(n - 4)(4n + 3)$

13) $(u + 8v)^2$

14) $2(x - 8y)(x - 3y)$

15) $(x - 5y)(x - 6y)$

16) $4(a - 3b)(a + b)$