Solution to Mid Unit

Answers to Chapter 3 (Factors & Products)

1) $(k-10)(k-3)$
2) $(k-1)(k-8)$
3) $(x-1)(x+5)$
4) $(n-5)(n-2)$
5) $(x-10)(x-6)$
6) $(n+5)(n+7)$
7) $(x-7)(x-6)$
8) $(p+10)(p+3)$
9) $(2n-9)(n-3)$
10) $(7n+5)(n+8)$
11) $(7n-10)(n+8)$
12) $(7b-6)(b+3)$
13) $(3x+1)(x-9)$
14) $(3n-10)(n+3)$
15) $4(7k-5)(k+7)$
16) $4v(7v-9)$
17) $10y^4(8-x^2y^2+y)$
18) $7x(xy+7x-6)$
19) $4x^3(-3y^6-10xy^2+7)$
20) $3(m^4n-8n^2-6)$
21) $5m^2n^2(m^3-4mn-1)$
22) $7b^3(-4+9ab+2a)$
23) $9ac(-4a^5bc^3-3bc^2+4c^2-12)$
24) $6p^4(-11q^2r+2p^3+11pr-11)$
25) $56b^2+49b-7$
26) $56b^2-120b+64$
27) $16n^2+4n-30$
28) $64x^2+56x+6$
29) $40a^3-4a^2+8a-12$
30) $14p^3+64p^2+18p-56$

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

Worksheet: GCF, Simple Trinomials & Hard Trinomials
Questions: 1-12

Math 10 Name_____

GCF, Simple Trinomials, Hard Trinomials Date_____

Choose a factoring Method and factor each completely:

1) $-9n^5 + 6n^3$

2) $36r^6 + 54r - 45$

3) $-40 + 4b^2 - 32b^4$

4) $4xy^2 + 20x^2y + 16xy$

5) $x^2 + 13x + 42$

6) $x^2 + 13x + 36$

7) $k^2 + k - 12$

8) $a^2 + 4a - 45$

9) $2p^2 + 11p - 63$

10) $3n^2 + 11n - 20$

11) $4n^2 - 4n - 15$

12) $6n^2 - 29n + 20$

1) $-9n^5 + 6n^3$

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

2) $36r^6 + 54r - 45$

$9(4r^6 + 6r - 5)$

3) $-40 + 4b^2 - 32b^4$

$4(-10 + b^2 - 8b^4)$

4) $4xy^2 + 20x^2y + 16xy$

$4xy(y + 5x + 4)$

5) $x^2 + 13x + 42$

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

6) $x^2 + 13x + 36$

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

7) $k^2 + k - 12$

$(k + 4)(k - 3)$

8) $a^2 + 4a - 45$

$(a - 5)(a + 9)$

9) $2p^2 + 11p - 63$

$(2p - 7)(p + 9)$

10) $3n^2 + 11n - 20$

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

11) $4n^2 - 4n - 15$

$(2n + 3)(2n - 5)$

12) $6n^2 - 29n + 20$

$(n - 4)(6n - 5)$

3.8 Factoring Special Polynomials

Difference of Squares

- two terms that are perfect squares.
- must be a difference
- factor like this...

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

EXAMPLES...

$(2x)^2 \quad (7)^2$

1) $4x^2 - 49$

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

Check

$4x^2 - 14x + 14x - 49$

$4x^2 - 49$

$(4x)^2 \quad (3y)^2$

2) $16x^2 - 9y^2$

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

3) $81z^4 - 625$

$(9z^2)^2 - (25)^2$

$(9z^2+25)(9z^2-25)$

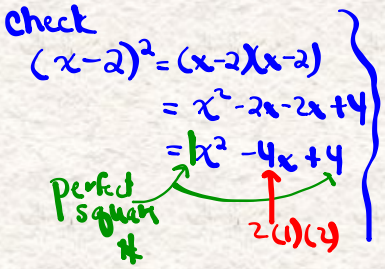
4) $49w^2 - 4s^2$

$(7w)^2 - (2s)^2$

$(7w+2s)(7w-2s)$

Perfect Square Trinomials

- three terms: the first and last are perfect squares.
- factors like this...



$$a^2 + 2ab + b^2 = (a + b)^2$$

OR

$$a^2 - 2ab + b^2 = (a - b)^2$$

- recognize them and you save yourself the decomposition steps!!!

EXAMPLES...

1) $25x^2 - 10x + 1$

$(5x)^2$ $2(5x)(1)$ $(1)^2$ ← Notice

$(5x - 1)^2$

2) $9x^2 + 24x + 16$

$(3x)^2$ double of $3x \cdot 4$ $(4)^2$

$(3x + 4)^2$

Decomposition Still Works

$25x^2 - 10x + 1$

mult +25 add -10

$25x^2 - 5x - 5x + 1$

$5x(5x-1) - 1(5x-1)$

$(5x-1)(5x-1)$

$(5x-1)^2$

Factor using Perfect Squares Method

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

$25x^2 - 120x + 144$

$(5x - 12)^2$

$(9x)^2$ $(10)^2$

$81x^2 - 180x + 100$

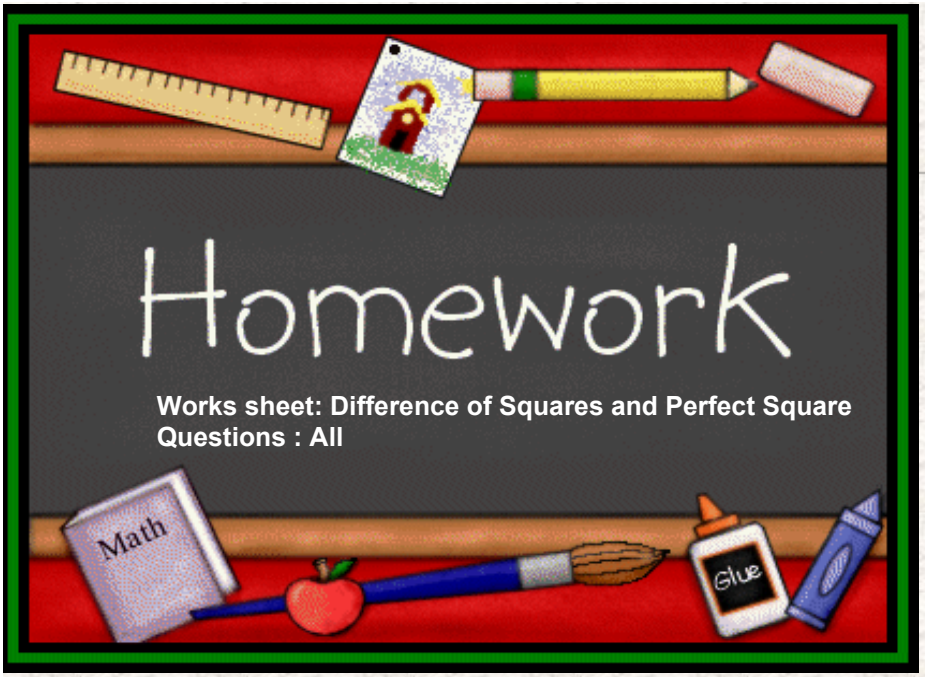
$(9x-10)^2$

$(7x)^2$ $2(7x)(6)$ $(6)^2$

$49x^2 + 84x + 36$

$(7x + 6)^2$

$36x^2 + 132x + 121$


Homework
Works sheet: Difference of Squares and Perfect Square
Questions : All
Math
Glue

Math 10 Name_____

Factoring: Difference of Squares and Perfect Squares

Date_____

Factor each completely.

1) $n^2 - 9$ $(n)^2-(3)^2$ $(n-3)(n+3)$

2) $25a^2 - 9$ $(5a)^2-(3)^2$ $(5a+3)(5a-3)$

3) $k^2 - 4$

4) $16x^2 - 9$ $(4x)^2-(3)^2$ $(4x-3)(4x+3)$

5) $x^2 - 25$

6) $25x^2 - 16y^2$ $(5x-4y)(5x+4y)$

7) $u^2 - 16v^2$ $(u-4v)(u+4v)$

8) $u^2 - 9v^2$ $(u-3v)(u+3v)$

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

10) $a^2 - 25b^2$ $(a-5b)(a+5b)$

11) $9m^2 + 12m + 4$ $(3m+2)^2$

12) $16r^2 + 8r + 1$

13) $25x^2 - 20x + 4$

14) $16n^2 + 40n + 25$

15) $9b^2 - 24b + 16$

16) $16m^2 - 24mn + 9n^2$

17) $9x^2 - 6xy + y^2$ $(3x-y)^2$

18) $25x^2 + 10xy + y^2$

19) $x^2 - 8xy + 16y^2$

20) $9x^2 + 24xy + 16y^2$

Attachments

Chapter 3 (Factors & Products) Review.pdf