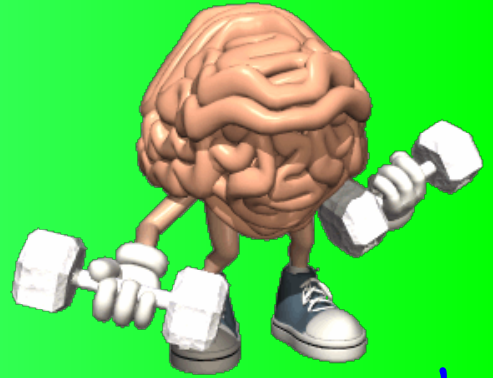


# Warm Up



Factor the following  
Using the Appropriate method:

1)  $-56a^7 + 48a^6 + 16a^3$   
 $-8a^3 (7a^4 - 6a^3 - 2)$   
 or  
 $+8a^3 (-7a^4 + 6a^3 + 2)$

2)  $x^2 + x - 56$   
 $(x-7)(x+8)$

$$\begin{array}{r} x \\ -56 \\ \hline 2 \quad 1 \quad 1 \quad 56 \\ 7 \quad 1 \quad 2 \quad 8 \end{array} \quad \begin{array}{r} + \\ +1 \end{array}$$

3)  $4r^2 + 7r - 2$

Hard trinomial (Decomposition)

$$\underbrace{4r^2 + 8r}_{\text{Factor}} \quad \underbrace{-1r - 2}_{\text{Factor}}$$

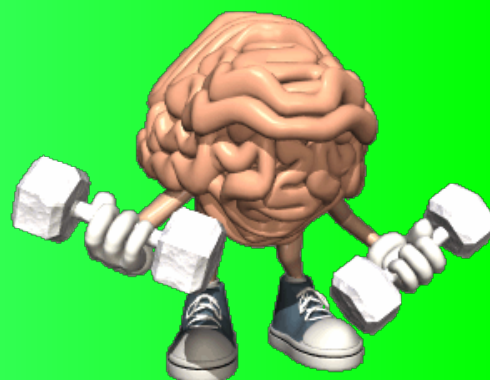
$$4r(r+2) - 1(r+2)$$

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

mult  $4x-2$

$$\begin{array}{r} -8 \\ -1 \quad +8 \\ -2 \quad +4 \end{array} \quad \begin{array}{r} + \\ +7 \end{array}$$

# Warm Up



Factor the following  
Using the Appropriate method:

## Answers

1)  $-56a^7 + 48a^6 + 16a^3$

2)  $x^2 + x - 56$

3)  $4r^2 + 7r - 2$

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

# Homework

Page 177  
Questions: 13

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

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

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

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

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



13. Factor. Check by expanding.

e)  $2k^2 - 11k + 15$

$2k^2 - 6k - 5k + 15$

$(2k^2 - 6k) - (5k - 15)$

$2k(k - 3) - 5(k - 3)$

$(k - 3)(2k - 5)$

f)  $2m^2 + 15m + 7$

$2m^2 + 14m + 1m + 7$

$(2m^2 + 14m) + (1m + 7)$

$2m(m + 7) + 1(m + 7)$

$(m + 7)(2m + 1)$



g)  $2g^2 + 15g + 18$

$2g^2 + 4g + 9g + 18$

$(2g^2 + 4g) + (9g + 18)$

$2g(g + 2) + 9(g + 2)$

$(g + 2)(2g + 9)$

h)  $2n^2 + 9n - 18$

$2n^2 + 12n - 3n - 18$

$(2n^2 + 12n) - (3n - 18)$

$2n(n + 6) - 3(n + 6)$

$(n + 6)(2n - 3)$

## Videos

 Factoring By Asterisk Method

 Factoring By Australian Method

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

GCF first

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

largest  
is  
new

diff

Simple

Does not factor

mult

-20

1, 20

2, 10

4, 5

Add

-1

X

$$\begin{aligned}
 & 6m^2 + 2m - 8 \\
 &= 2(3m^2 + 1m - 4) \quad \begin{array}{l} \swarrow \text{coeff} \\ \searrow \text{diff} \end{array} \\
 & \quad \text{hard} \quad \text{break down to factors} \rightarrow \begin{array}{l} \text{mult} \\ -12 \\ -1, +12 \\ -2, +6 \\ -3, +4 \end{array} \quad \begin{array}{l} \text{add} \\ +1 \end{array} \\
 &= 2(3m^2 - 3m + 4m - 4) \\
 & \quad \text{factor GCF} \quad \text{factor GCF} \\
 &= (2)(3m(m-1) + 4(m-1)) \\
 &= (2)(m-1)(3m+4)
 \end{aligned}$$



$$3xyz + 6x^2yz$$

$$3 \left( \underline{xyz} + 2 \underline{x^2yz} \right)$$

$$3xyz \left( 1 + 2x' \right)$$

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

# Homework

Work sheet  
Questions :1-10

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

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

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

hard trinomial  
so decompose  
middle

<u>mult</u>	<u>add</u>
-12	+1
-1, +12	
-2, +6	
-3, +4 ✓	

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

factor  
GCF

factor  
GCF

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

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

$$2) 3x^2 - 16x + 5$$
$$(3x - 1)(x - 5)$$

$$4) 2n^2 - 17n - 9$$
$$(2n + 1)(n - 9)$$

$$6) 5a^2 - 34a + 45$$
$$(5a - 9)(a - 5)$$

$$8) 4n^2 - 15n + 9$$
$$(n - 3)(4n - 3)$$

$$10) 4m^2 + 13m + 10$$
$$(m + 2)(4m + 5)$$

$$12) 8n^2 - 26n - 24$$
$$2(n - 4)(4n + 3)$$

$$14) 2x^2 - 22xy + 48y^2$$
$$2(x - 8y)(x - 3y)$$

$$16) 4a^2 - 8ab - 12b^2$$
$$4(a - 3b)(a + b)$$



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

# Homework

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

## Answers:

### Answers to GCF, Simple Trinomials, Hard Trinomials

- |                      |                       |                          |                       |
|----------------------|-----------------------|--------------------------|-----------------------|
| 1) $3n^3(-3n^2 + 2)$ | 2) $9(4r^6 + 6r - 5)$ | 3) $4(-10 + b^2 - 8b^4)$ | 4) $4xy(y + 5x + 4)$  |
| 5) $(x + 6)(x + 7)$  | 6) $(x + 9)(x + 4)$   | 7) $(k + 4)(k - 3)$      | 8) $(a - 5)(a + 9)$   |
| 9) $(2p - 7)(p + 9)$ | 10) $(3n - 4)(n + 5)$ | 11) $(2n + 3)(2n - 5)$   | 12) $(n - 4)(6n - 5)$ |

Factoring Review

Name \_\_\_\_\_

## Math 10 (Numbers, Functions and Relations 10)

**Factor the common factor out of each expression.**

1)  $20r^5 + 4r^2 - 40$

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

3)  $12n^5 - 48n^2 + 42n$

4)  $-56a^7 + 48a^6 + 16a^3$

**Factor each completely.**

5)  $x^2 + x - 56$

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

7)  $4k^2 - 24k - 28$

8)  $x^2 - 3x - 18$

9)  $b^2 - 7b - 8$

10)  $a^2 + 13a + 30$

11)  $30n^2 - 24n - 72$

12)  $5x^2 - 21x - 54$

13)  $16n^2 - 164n + 288$

14)  $54x^2 - 90x$

15)  $4x^2 + 6x$

16)  $6n^2 - 5n + 1$

17)  $4r^2 + 7r - 2$

18)  $4n^2 - 4n - 35$

19)  $6v^2 - 14v$

**Answers to Math 10 (Numbers, Functions and Relations 10)**

1)  $4(5r^5 + r^2 - 10)$

2)  $-5x(x^2 + x + 1)$

3)  $6n(2n^4 - 8n + 7)$

4)  $8a^3(-7a^4 + 6a^3 + 2)$

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

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

7)  $4(k + 1)(k - 7)$

8)  $(x - 6)(x + 3)$

9)  $(b - 8)(b + 1)$

10)  $(a + 3)(a + 10)$

11)  $6(5n + 6)(n - 2)$

12)  $(5x + 9)(x - 6)$

13)  $4(n - 8)(4n - 9)$

14)  $18x(3x - 5)$

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

16)  $(3n - 1)(2n - 1)$

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

18)  $(2n + 5)(2n - 7)$

19)  $2v(3v - 7)$