

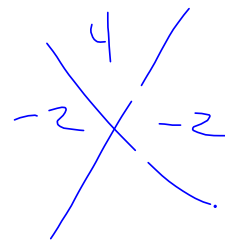
warm up:

## FACTORING QUADRATICS

Directions: Fill in the blanks with integers so that the quadratic expression is factorable.

$$1. x^2 + \underline{-4} x + 4 = (x - 2)(x - 2)$$

$$2. x^2 + \underline{\quad} x - 12$$



Practice test review:

Check your answers. Do you have questions?

Tonight: rework problems in each section  
where you had difficulty.

**Unit 8 Practice Test**

(All polynomial answers should be in descending order)

Name \_\_\_\_\_

Date \_\_\_\_\_ Per \_\_\_\_\_

**Write in standard form:****What is the degree of each polynomial:**

1.  $7 - 4x^2 - 5x$

2.  $14x^6y^4z$

3.  $-3b^4 + 4b^3 - 5b^2 + b$

**Name each polynomial based on its degree and number of terms.**

4.  $2x - 3$

5.  $x^2 + 2x - 5$

6.  $7x^3$

**Add or Subtract.**

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

8.  $(3x^3 + 2x^2 - 5) + (-x^2 + 8x - 7)$

9.  $(-9x^2 + 3x - 5) - (-2x^2 - 4x + 3)$

10.  $(x^4 + 2x + 9) - (10x^2 - 4x - 2)$

1.
2.
3.
4.
5.
6.
7.
8.
9.

**Multiply:**

11.  $-2(x + 12)$

12.  $3n^3(5n^2 + 4n - 6)$

13.  $(x + 7)(x - 3)$
14.  $(x - 5)(x - 4)$

15.  $(2x + 3)(8x - 4)$

16.  $(n + 6)(n - 6)$
17.  $(x + 3)^2$

18.  $(a - 3)(a^2 + 6a - 8)$

**Factor:**

19.  $21x^5 - 35x^3$

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

21.  $n^2 + 2n - 8$

10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.
21.

Continue Factoring:

22.  $x^2 - 49$

23.  $9x^2 - 16$

24.  $x^2 - 16x + 64$

25.  $w^2 + 12w + 36$

26.  $4a^2 - 20a + 25$

27.  $3y^2 + 11y + 10$

For #'s 28-30 be sure to factor completely!

(*hint*: in other words, pull a GCF out First!!!)

28.  $2m^2 - 18m + 40$

29.  $6s^2 - 6$

30.  $5x^2 + 30x + 45$

22.
23.
24.
25.
26.
27.
28.
29.
30.
31.
32.
33.
34.
35.

Factor by grouping:

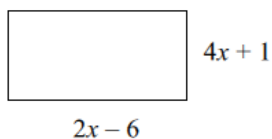
31.  $k^3 - 3k^2 + 5k - 15$

32.  $6m^3 + 8m^2 + 3m + 4$

33.  $27x^3 + 45x^2 - 9x - 15$

Area Problems:

34. What is the area of the rectangle below?



35. If the area of a square is  $x^2 - 6x + 9$ , how long is just one side of the square?

A square is shown with the area formula  $A = x^2 - 6x + 9$  written inside it.

Just one side is \_\_\_\_\_

ex:

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

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



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

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**8-8 Factoring by Grouping**

Polynomials with four terms can be factored too!

**Example 1: Factoring Polynomials with Four Terms**Factor:  $4n^3 + 8n^2 - 5n - 10$ 

$$= 4n^2(\underline{n+2}) - 5(\underline{n+2})$$

$$= (4n^2 - 5)(n+2)$$

**✓ Understanding Check:**Factor: a.  $2w^3 + w^2 - 14w - 7$ 

$$= w^2(\underline{2w+1}) - 7(\underline{2w+1})$$

$$= (w^2 - 7)(2w+1)$$

\*\*\*Make sure you don't have a common factor that needs to come out first!!!

b.  $10x^3 + 40x^2 + 12x + 48$ 

$$= 2(5x^3 + 20x^2 + 6x + 24)$$

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

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

ex:  $\frac{2a^3 - a^2b}{\phantom{+ 10a - 5b}} + \frac{10a - 5b}{\phantom{+ 10a - 5b}}$

$$= a^2(\underline{2a - b}) + 5(\underline{+2a - b})$$

## Review for test

Factor by grouping:

31.  $k^3 - 3k^2 + 5k - 15$

$k^2( \quad )$

32.  $6m^3 + 8m^2 + 3m + 4$

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

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

did you get the GCF?

$= 3(9x^3 + 15x^2 - 3x - 5)$

33.  $27x^3 + 45x^2 - 9x - 15$

$9x^2(3x+5) - 3(3x+5)$

$(9x^2 - 3)(3x + 5)$

**Homework:**

**HW page 85**

and

# 31 - 33 on Practice test.