Review Worksheet

Key

Factor by taking out the GCF.

1. $3x^6 - 12x^3$

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

2. $8pq^2 + 8pq + 2p$

$2p(4q^2+4q+1)$

$2p(2q+1)^2$

Factor by Grouping (four terms)

3. $2k^3 + 3k^2 + 6k + 9$

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

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

4. $3x^3 + 6x^2 - 4x - 8$

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

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

Factor trinomials. Do not use the long way for trinomials in which a = 1!

5. $n^2 + 9n + 20$

$(n+5)(n+4)$

6. $x^2 - 6x + 8$

$(x-4)(x-2)$

7. $4x^2 + 22x + 10$

$2(2x^2+11x+5)$

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

16
9 | 144
9
34

8. $12x^2 + 7x - 12$

$12x^2+16x-9x-12$

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

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

Factor special products.

9. $x^6 - 9$

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

10. $4r^6 - 25s^6$

$(2r^3-5s^3)(2r^3+5s^3)$

11. $49x^2 - 70x + 25$

$(7x-5)^2$

12. $36x^2 + 24x + 4$

$(6x+2)^2$ OR

$4(9x^2+6x+1)$

$4(3x+1)^2$

Solve by factoring

13. $-10x^2 + 11x = -6$

$0 = 10x^2 - 11x - 6$

$0 = 10x^2 - 15x + 4x - 6$

$0 = 5x(2x-3) + 2(2x-3)$

$0 = (5x+2)(2x-3)$

$x = -2/5 \quad x = 3/2$

14. $-4x^2 = -8x - 5$

$0 = 4x^2 - 8x - 5$

$0 = 4x^2 - 10x + 2x - 5$

$0 = 2x(2x-5) + 1(2x-5)$

$0 = (2x+1)(2x-5)$

$x = -1/2 \quad x = 5/2$

15. $x^2 - 25 = 0$

$(x-5)(x+5) = 0$

$x = 5, \; x = -5$

16. $x^2 + 6x + 5 = 0$

$(x+5)(x+1) = 0$

$x = -1$

$x = -5$

Word problems on the back!

Word Problems

17. Find all values of b that make this factorable: $x^2 + bx + 8$

Multiples: 8 : 1 + 8 2 + 4
-1 + -8 -2 + -4
Adds : b 9 + -9 6 + -6

18. A civil engineer needs the area of a rectangular lot to be $(6x^2 + 5x)\ ft^2$. Find the possible dimensions of the lot.

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

19. A rectangular porch has dimensions of $(x + 12)$ and $(x + 5)$ feet.

If the area of the porch floor is 120 square feet, what are the dimensions of the porch?

a. Write an equation for this situation.

$(x+12)(x+5) = 120$

b. Solve the equation to find the dimensions of the porch.

$x^2 + 5x + 12x + 60 = 120$
$x^2 + 17x + 60 = 120$
$x^2 + 17x - 60 = 0$
$(x+20)(x-3) = 0$
$x = -20$ $x = 3$

15 × 8

20. Go back and work three problems that you missed on an old homework.