

## Unit 3 Factoring Review

Factor each completely.

1)  $14x^3 + 14x^2 - 35x - 35$

$$7(2x^2 - 5)(x + 1)$$

2)  $21b^3 - 35b^2 + 15b - 25$

$$(7b^2 + 5)(3b - 5)$$

3)  $15b^3 - 25b^2 - 3b + 5$

$$(5b^2 - 1)(3b - 5)$$

4)  $14a^3 + 35a^2 - 10a - 25$

$$(7a^2 - 5)(2a + 5)$$

5)  $a^3 - 8a^2$

$$a^2(a - 8)$$

6)  $4x^2 + 16x + 12$

$$4(x + 3)(x + 1)$$

7)  $4a^3 - 256a$

$$4a(a + 8)(a - 8)$$

8)  $v^3 + v^2 - 6v$

$$v(v - 2)(v + 3)$$

9)  $2n^3 - 23n^2 + 30n$

$$n(2n - 3)(n - 10)$$

10)  $5x^2 - 38x + 21$

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

11)  $15r^3 + 20r^2 - 20r$

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

12)  $15p^2 + 115p + 150$

$$5(3p + 5)(p + 6)$$

13)  $25x^2 - 9$

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

14)  $9a^2 - 16$

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

15)  $x^2 - 9$

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

16)  $3r^2 - 27$

$$3(r+3)(r-3)$$

17)  $32k^2 + 2$

$$2(4k+i)(4k-i)$$

18)  $50a^2 + 2$

$$2(5a+i)(5a-i)$$

19)  $4k^2 + 9$

$$(2k+3i)(2k-3i)$$

20)  $16x^2 + 25$

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

21)  $x^2 - 13$

$$(x+\sqrt{13})(x-\sqrt{13})$$

22)  $4x^2 - 12$

$$4(x+\sqrt{3})(x-\sqrt{3})$$

23)  $16x^2 + 63$

$$(4x+3i\sqrt{7})(4x-3i\sqrt{7})$$

24)  $x^2 + 72$

$$(x+6i\sqrt{2})(x-6i\sqrt{2})$$

25) A square has an area of  $x^2 + 10x + 25$ . Write an expression in terms of  $x$  for the possible length and width of the square.

Length:  $x+5$

Width:  $x+5$

26) The Johnsons are putting a fence in their backyard, but are very picky about the ratio of the fence dimensions. They want to make sure that the area of the lawn is always represented by  $x^2 - 9x + 20$ . What expressions could represent the dimensions of their fence?

$$(x-5)(x-4)$$