

Basic Practice 4

FOR USE WITH LESSON 10.4

① → #1-15

② → #16-19 front
#1-12, 13, 17, 20 back

put up:
front
back

16	2
17	4
18	6
19	8
	10
	13
	17

In Exercises 1-6, find the greatest common factor of the three terms.

1. $4x^2, 8x, 6$

2

2. $9x^3, 6x^2, 5x$

X

3. $8x^3, 12x^2, 4x$

4x

4. $40x^3, 80x, 30x^2$

10x

5. $18y^3, 12xy^2, 30x^2y$

6y

6. $5x^2y, 9xy^2, xy$

xy

In Exercises 7-15, factor out the greatest common monomial factor.

7. $10x - 15$

$5(2x - 3)$

8. $9 - 12x$

$3(3 - 4x)$

9. $26x^2 - 2$

$2(13x^2 - 1)$

10. $4x^2 + 8$

$4(x^2 + 2)$

11. $-9x - 3x^2$

$-3x(3 + x)$

12. $16x^2 - 8x$

$8x(2x - 1)$

13. $16x^2 + 8x - 12$

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

14. $27x^3 + 9x^2 + 3x$

$3x(9x^2 + 3x + 1)$

15. $15x^4 - 10x^3 - 5x^2$

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

In Exercises 16-24, factor the expression.

Remember:

When factoring an expression, first factor out any common monomial factor. Then look for a special-product pattern.

16. $x^2 - 25$

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

17. $x^2 - 100$

$(x + 10)(x - 10)$

18. $y^2 - 81$

$(y + 9)(y - 9)$

19. $4x^2 - 49$

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

20. $x^2 + 4x + 4$

21. $x^2 + 12x + 36$

22. $y^2 - 6y + 9$

23. $2t^2 + 20t + 50$

24. $27x^2 - 36x + 12$

25. A group of Cub Scouts launched homemade rockets in a big field. The height of one rocket during its flight can be modeled by $-16t^2 + 48t$, where t is the time in seconds. Factor this expression.

Name _____

Date _____ Period _____

Factoring By Grouping

Factor each completely.

$$1) 8r^3 - 64r^2 + r - 8$$
$$(8r^2 + 1)(r - 8)$$

$$2) 12p^3 - 21p^2 + 28p - 49$$
$$(3p^2 + 7)(4p - 7)$$

$$3) 12x^3 + 2x^2 - 30x - 5$$
$$(2x^2 - 5)(6x + 1)$$

$$4) 6v^3 - 16v^2 + 21v - 56$$
$$(2v^2 + 7)(3v - 8)$$

$$5) 63n^3 + 54n^2 - 105n - 90$$
$$3(3n^2 - 5)(7n + 6)$$

$$6) 21k^3 - 84k^2 + 15k - 60$$
$$3(7k^2 + 5)(k - 4)$$

$$7) 25v^3 + 5v^2 + 30v + 6$$
$$(5v^2 + 6)(5v + 1)$$

$$8) 105n^3 + 175n^2 - 75n - 125$$
$$5(7n^2 - 5)(3n + 5)$$

$$9) 96n^3 - 84n^2 + 112n - 98$$
$$2(6n^2 + 7)(8n - 7)$$

$$10) 28v^3 + 16v^2 - 21v - 12$$
$$(4v^2 - 3)(7v + 4)$$

$$11) 4v^3 - 12v^2 - 5v + 15$$
$$(4v^2 - 5)(v - 3)$$

$$12) 49x^3 - 35x^2 + 56x - 40$$
$$(7x^2 + 8)(7x - 5)$$

$$13) 24p^3 + 15p^2 - 56p - 35$$
$$(3p^2 - 7)(8p + 5)$$

$$14) 24r^3 - 64r^2 - 21r + 56$$
$$(8r^2 - 7)(3r - 8)$$