

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

**Divide using synthetic division and long division.**

1)  $(k^3 + 13k^2 + 35k - 16) \div (k + 5)$

2)  $(7n^3 + 69n^2 - 11n - 6) \div (n + 10)$

3)  $(3r^3 + 2r^2 - 47r - 21) \div (r + 4)$

4)  $(10x^3 - 11x^2 + 10x - 18) \div (x - 1)$

5)  $(b^3 + 3b^2 - 39b - 5) \div (b - 5)$

6)  $(10k^3 - 13k^2 - 4k + 7) \div (k - 1)$

7)  $(x^3 - 6x^2 - 29x - 6) \div (x + 3)$

8)  $(r^3 - 13r^2 + 35r + 9) \div (r - 9)$

**Factoring Higher Powers. One factor has been given.**

9)  $x^3 + 6x^2 + 3x - 10 = 0; x + 2$

10)  $x^3 - 7x^2 + 15x - 9 = 0; x - 3$

11)  $x^3 + 4x^2 - 9x - 36 = 0; x - 3$

12)  $x^3 + 2x^2 - 9x - 18 = 0; x + 2$

**Factor each completely.**

13)  $8 - x^3$

14)  $x^3 + 64$

15)  $m^3 - 64$

16)  $u^3 + 8$

17)  $64 + 27x^3$

18)  $216u^3 + 1$

19)  $m^3 + 216$

20)  $125x^3 + 8$

21)  $64m^3 + 27n^3$

22)  $8x^3 - 125y^3$

23)  $x^3 + 64y^3$

24)  $27x^3 - 8y^3$

## Assignment

Date \_\_\_\_\_ Period \_\_\_\_\_

**Divide using synthetic division and long division.**

1)  $(k^3 + 13k^2 + 35k - 16) \div (k + 5)$

$$k^2 + 8k - 5 + \frac{9}{k + 5}$$

2)  $(7n^3 + 69n^2 - 11n - 6) \div (n + 10)$

$$7n^2 - n - 1 + \frac{4}{n + 10}$$

3)  $(3r^3 + 2r^2 - 47r - 21) \div (r + 4)$

$$3r^2 - 10r - 7 + \frac{7}{r + 4}$$

4)  $(10x^3 - 11x^2 + 10x - 18) \div (x - 1)$

$$10x^2 - x + 9 - \frac{9}{x - 1}$$

5)  $(b^3 + 3b^2 - 39b - 5) \div (b - 5)$

$$b^2 + 8b + 1$$

6)  $(10k^3 - 13k^2 - 4k + 7) \div (k - 1)$

$$10k^2 - 3k - 7$$

7)  $(x^3 - 6x^2 - 29x - 6) \div (x + 3)$

$$x^2 - 9x - 2$$

8)  $(r^3 - 13r^2 + 35r + 9) \div (r - 9)$

$$r^2 - 4r - 1$$

**Factoring Higher Powers. One factor has been given.**

9)  $x^3 + 6x^2 + 3x - 10 = 0; x + 2$

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

10)  $x^3 - 7x^2 + 15x - 9 = 0; x - 3$

$$(x - 3)^2(x - 1) = 0$$

11)  $x^3 + 4x^2 - 9x - 36 = 0; x - 3$

$$(x + 3)(x + 4)(x - 3) = 0$$

12)  $x^3 + 2x^2 - 9x - 18 = 0; x + 2$

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

**Factor each completely.**

13)  $8 - x^3$

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

14)  $x^3 + 64$

$$(x + 4)(x^2 - 4x + 16)$$

15)  $m^3 - 64$

$$(m - 4)(m^2 + 4m + 16)$$

16)  $u^3 + 8$

$$(u + 2)(u^2 - 2u + 4)$$

17)  $64 + 27x^3$

$$(4 + 3x)(16 - 12x + 9x^2)$$

18)  $216u^3 + 1$

$$(6u + 1)(36u^2 - 6u + 1)$$

19)  $m^3 + 216$

$$(m + 6)(m^2 - 6m + 36)$$

20)  $125x^3 + 8$

$$(5x + 2)(25x^2 - 10x + 4)$$

21)  $64m^3 + 27n^3$

$$(4m + 3n)(16m^2 - 12mn + 9n^2)$$

22)  $8x^3 - 125y^3$

$$(2x - 5y)(4x^2 + 10xy + 25y^2)$$

23)  $x^3 + 64y^3$

$$(x + 4y)(x^2 - 4xy + 16y^2)$$

24)  $27x^3 - 8y^3$

$$(3x - 2y)(9x^2 + 6xy + 4y^2)$$