Polynomial Division (#1-14) Review (#15-32)

Divide using synthetic division.

1) $(6k^2 + 3k - 9) \div (k - 1)$

2) $(n^3 + 8n^2 + 19n + 14) \div (n + 4)$

3) $(x^3 + 4x^2 - 4x + 5) \div (x + 5)$

4) $(9a^2 + 36a - 38) \div (a + 5)$

5) $(b^3 - 7b^2 - 10) \div (b - 7)$

6) $(x^4 + 3x^3 - 4x - 11) \div (x + 3)$

Divide using long division

7) $(4b^2 + 24 + 26b) \div (b + 5)$

8) $(10x^2 + 5 - 9x) \div (2x - 1)$

9) $(3a^3 - 8a^2 + 6a - 26) \div (a - 3)$

10) $(2k^3 + 7k^2 + 8) \div (2k + 7)$

Evaluate using direct substitution.

11) $f(x) = x^3 + x^2 - 6x - 9$ at $x = -2$

12) $f(x) = -4x^3 - 14x^2 + 9$ at $x = -3$

Evaluate using synthetic substitution.

13) $f(a) = a^3 - 2a^2 - 13a + 30$ at $a = 4$

14) $f(n) = n^3 + 5n^2 - 26$ at $n = -3$

Simplify. Your answer should contain only positive exponents.

15) $\left(\dfrac{b^2 \cdot 2b^3}{2b^4}\right)^4$

16) $a^3 \cdot 2a^4$

17) $\left(\dfrac{2a^3b^3 \cdot 2ba^{-1}}{ab^3}\right)^{-2}$

18) $\left(2m^{-3}\right)^3 \cdot 2m$

Name each polynomial by degree and number of terms.

19) $7a^4$

20) $-9n^3 + 5n^2 - 7$

Find each product.

21) $(7p - 7)(3p + 4)$

22) $(4n + 4)(7n^2 - 5n + 3)$

Factor each completely.

23) $4x^3 + 500$

24) $27m^3 - 64$

Simplify each expression.

25) $(7a - 7a^3 + 5a^2) + (7a^3 - 7a - a^2)$

26) $(r - 3r^3 - 1) - (6r + 8r^3 - 3)$

Factor each completely.

27) $14a^4 + 32a^2 + 8$

28) $7x^4 - 32x^2 + 16$

29) $x^4 + 6x^2 + 5$

30) $x^4 - 10x^2 + 9$

31) $7x^3 - 4x^2 - 14x + 8$

32) $n^3 + 3n^2 - n - 3$

Polynomial Division (#1-14) Review (#15-32)

Divide using synthetic division.

1) $(6k^2 + 3k - 9) \div (k - 1)$

$6k + 9$

2) $(n^3 + 8n^2 + 19n + 14) \div (n + 4)$

$n^2 + 4n + 3 + \frac{2}{n+4}$

3) $(x^3 + 4x^2 - 4x + 5) \div (x + 5)$

$x^2 - x + 1$

4) $(9a^2 + 36a - 38) \div (a + 5)$

$9a - 9 + \frac{7}{a+5}$

5) $(b^3 - 7b^2 - 10) \div (b - 7)$

$b^2 - \frac{10}{b-7}$

6) $(x^4 + 3x^3 - 4x - 11) \div (x + 3)$

$x^3 - 4 + \frac{1}{x+3}$

Divide using long division

7) $(4b^2 + 24 + 26b) \div (b + 5)$

$4b + 6 - \frac{6}{b+5}$

8) $(10x^2 + 5 - 9x) \div (2x - 1)$

$5x - 2 + \frac{3}{2x-1}$

9) $(3a^3 - 8a^2 + 6a - 26) \div (a - 3)$

$3a^2 + a + 9 + \frac{1}{a-3}$

10) $(2k^3 + 7k^2 + 8) \div (2k + 7)$

$k^2 + \frac{8}{2k+7}$

Evaluate using direct substitution.

11) $f(x) = x^3 + x^2 - 6x - 9$ at $x = -2$

-1

12) $f(x) = -4x^3 - 14x^2 + 9$ at $x = -3$

-9

Evaluate using synthetic substitution.

13) $f(a) = a^3 - 2a^2 - 13a + 30$ at $a = 4$

10

14) $f(n) = n^3 + 5n^2 - 26$ at $n = -3$

-8

Simplify. Your answer should contain only positive exponents.

15) $\left(\frac{b^2 \cdot 2b^3}{2b^4}\right)^4$

b^4

16) $a^3 \cdot 2a^4$

$2a^7$

17) $\left(\frac{2a^3b^3 \cdot 2ba^{-1}}{ab^3}\right)^{-2}$ $\frac{1}{16b^2a^2}$

18) $(2m^{-3})^3 \cdot 2m$ $\frac{16}{m^8}$

Name each polynomial by degree and number of terms.

19) $7a^4$

quartic monomial

20) $-9n^3 + 5n^2 - 7$

cubic trinomial

Find each product.

21) $(7p-7)(3p+4)$

$21p^2+7p-28$

22) $(4n+4)(7n^2-5n+3)$

$28n^3+8n^2-8n+12$

Factor each completely.

23) $4x^3+500$

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

24) $27m^3-64$

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

Simplify each expression.

25) $(7a-7a^3+5a^2)+(7a^3-7a-a^2)$

$4a^2$

26) $(r-3r^3-1)-(6r+8r^3-3)$

$-11r^3-5r+2$

Factor each completely.

27) $14a^4+32a^2+8$

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

28) $7x^4-32x^2+16$

$(7x^2-4)(x-2)(x+2)$

29) x^4+6x^2+5

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

30) x^4-10x^2+9

$(x-3)(x+3)(x-1)(x+1)$

31) $7x^3-4x^2-14x+8$

$(x^2-2)(7x-4)$

32) n^3+3n^2-n-3

$(n-1)(n+1)(n+3)$