Exam

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Add or subtract as indicated. Express the answer as a single polynomial in standard form.

1) $(-7x^2 + 8) - (-x^3 + 3x^2 + 4)$ 1) _____

A) $-6x^3 + 3x^2 + 4$ B) $x^3 - 4x^2 + 12$ C) $x^3 - 10x^2 + 4$ D) $-6x^3 + 11x^2 - 4$

2) $(5x^5 - 13x^3 - 14) - (7x^5 + 16x^3 - 4)$ 2) _____

A) $-2x^5 - 29x^3 - 18$

B) $-2x^5 - 29x^3 - 10$

C) $-41x^8$

D) $-2x^5 - 6x^3 - 18$

3) $(2x^7 - 18x^6 + 14) - (8x^6 + 7x^7 + 3)$ 3) _____

A) $-20x^{13}$

B) $-5x^7 - 26x^6 + 17$

C) $-5x^7 - 26x^6 + 11$

D) $-5x^7 - 11x^6 + 17$

4) $(3x^5 + 9x^4 + 6x) + (7x^5 - 6x^4 + 7x)$ 4) _____

A) $10x^5 + 3x^4 + 13x$

B) $26x^{10}$

C) $10x + 3x^5 + 13x^4$

D) $13x^5 - 3x^4 + 16x$

Multiply the polynomials using the FOIL method. Express the answer as a single polynomial in standard form.

5) $(-2x - 12)(-2x - 10)$ 5) _____

A) $4x^2 + 44x + 120$

B) $4x^2 + 44x + 44$

C) $-4x^2 + 44x + 44$

D) $-4x^2 + 44x + 120$

6) $(x + 7y)(x - 11y)$ 6) _____

A) $x - 4xy - 77y$ B) $x^2 - 4xy - 77y^2$ C) $x^2 - 4xy - 4y^2$ D) $x^2 - 7xy - 77y^2$

7) $(x - 7y)(4x - 8y)$ 7) _____

A) $x^2 - 36xy + 56y^2$

B) $4x^2 - 36xy - 36y^2$

C) $x^2 - 36xy - 36y^2$

D) $4x^2 - 36xy + 56y^2$

8) $(-2x + 10y)(5x + 6y)$ 8) _____

A) $-10x^2 + 50xy + 60y^2$

B) $-10x^2 + 38xy + 38y^2$

C) $-10x^2 - 12xy + 60y^2$

D) $-10x^2 + 38xy + 60y^2$

Multiply the polynomials. Express the answer as a single polynomial in standard form.

9) $(9y + x)(9y - x)$ 9) _____

A) $81y^2 - x^2$

B) $81y^2 - 18xy - x^2$

C) $81y^2 + 18xy - x^2$

D) $18y^2 - x^2$

10) $(8x - 5)^2$ 10) _____

A) $8x^2 + 25$ B) $64x^2 - 80x + 25$ C) $8x^2 - 80x + 25$ D) $64x^2 + 25$

11) $(b - z)^2$ 11) _____

A) $b^2 - 2bz - z^2$ B) $b^2 + 2bz + z^2$ C) $b^2 - bz + z^2$ D) $b^2 - 2bz + z^2$

12) $(8x + 3y)^2$ 12) _____

A) $64x^2 + 9y^2$ B) $64x^2 + 48xy + 9y^2$

C) $8x^2 + 48xy + 9y^2$ D) $8x^2 + 9y^2$

Find the quotient and the remainder.

13) $18x^8 - 30x^3$ divided by $6x$ 13) _____

A) $18x^7 - 30x^2$; remainder 0 B) $3x^9 - 5x^4$; remainder 0

C) $3x^8 - 5x^3$; remainder 0 D) $3x^7 - 5x^2$; remainder 0

14) $35x^2 + 10x - 11$ divided by $5x$ 14) _____

A) $7x - 9$; remainder 0 B) $7x^2 + 2x - \frac{11}{5}$; remainder 0

C) $35x + 10$; remainder -11 D) $7x + 2$; remainder -11

Factor the difference of two squares.

15) $9 - x^2$ 15) _____

A) prime B) $(3 + x)^2$ C) $(3 - x)^2$ D) $(3 - x)(3 + x)$

16) $x^3 - 512$ 16) _____

A) $(x - 8)(x^2 + 64)$ B) $(x + 512)(x^2 - 1)$

C) $(x - 8)(x^2 + 8x + 64)$ D) $(x + 8)(x^2 - 8x + 64)$

17) $x^3 + 729$ 17) _____

A) $(x - 729)(x^2 - 1)$ B) $(x - 9)(x^2 + 9x + 81)$

C) $(x + 9)(x^2 + 81)$ D) $(x + 9)(x^2 - 9x + 81)$

Factor the polynomial.

18) $x^2 + 3x - 10$ 18) _____

A) $(x - 5)(x + 1)$ B) $(x - 5)(x + 2)$ C) $(x + 5)(x - 2)$ D) prime

19) $x^2 + 36$ 19) _____

A) $(x + 6)^2$ B) $(x - 6)^2$ C) $(x + 6)(x - 6)$ D) prime

Factor completely. If the polynomial cannot be factored, say it is prime.

20) $7x^2 - 7x - 42$ 20) _____

A) $7(x - 2)(x + 3)$ B) $7(x + 2)(x - 3)$ C) $(7x + 14)(x - 3)$ D) prime

21) $5x^2 - 35x + 60$ 21) _____

A) $5(x - 4)(x - 3)$ B) $(x - 4)(5x - 15)$ C) $5(x - 12)(x + 1)$ D) prime

22) $15x^2 - 65x - 50$ 22) _____

A) $(15x + 10)(x - 5)$ B) $5(3x - 2)(x + 5)$ C) $5(3x + 2)(x - 5)$ D) prime

23) $6x^2 - 21x - 12$ 23) _____

A) $3(2x - 1)(x + 4)$ B) $3(2x + 1)(x - 4)$ C) $(6x - 3)(x + 4)$ D) prime

Use synthetic division to find the quotient and the remainder.

24) $x^5 + 8x^4 + 13x^3 - 8x^2 + 12x + 13$ is divided by $x + 5$ 24) _____

A) $x^4 + 3x^3 - 2x^2 + 2x + 2$; remainder 3 B) $x^4 + 3x^3 - 2x^2 + 2x + 3$; remainder 0

C) $x^3 + 3x^2 - 2x + 2$; remainder 3 D) $x^4 + 3x^3 - 2x^2 + 2x - 2$; remainder 5

25) $x^4 - 4$ is divided by $x - 3$ 25) _____

A) $x^3 + 3x^2 + 9x + 27$; remainder 77 B) $x^3 + 3x^2 + 9x + 27$; remainder 253

C) $x^3 + 4x^2 + 16x + 64$; remainder 253 D) $x^3 + 7x^2 + 6x + 3$; remainder 77