FIBO · LEARN, PRACTICE & EXPLORE MATH

Unit 8 · Polynomials & Factoring — Unit Test

16 questions · 16 points · full worked solutions inside

ANSWER KEY — TEACHERS & PARENTS

Name _____ Date _____

Class _____

Directions: This key shows a full worked solution for every question. Final answers are boxed.

1 **What is the degree of $7x^4 - 3x^2 + x$?** [1 pt]

Solution.
Exponents: 4, 2, 1. Highest is 4.

4

2 **Classify $5x^3 - 2$: monomial, binomial, or trinomial? (Type one word.)** [1 pt]

Solution.
Two terms → binomial.

binomial

3 **Add: $(2x^2 - 3x + 4) + (5x^2 + x - 2)$. (Type like 7x^2-2x+2.)** [1 pt]

Solution.
$2x^2 + 5x^2 = 7x^2$; $-3x + x = -2x$; $4 - 2 = 2$.

7x^2-2x+2

4 **Multiply: $(x - 7)(x + 2)$. (Type like x^2-5x-14.)** [1 pt]

Solution.
$x^2 + 2x - 7x - 14 = x^2 - 5x - 14$.

x^2-5x-14

5 **Subtract: $(4x^2 + 5x) - (x^2 - 3x + 2)$. (Type like 3x^2+8x-2.)** [1 pt]

Solution.
$4x^2 + 5x - x^2 + 3x - 2 = 3x^2 + 8x - 2$.

3x^2+8x-2

6 **Factor: $10x^2 + 15x$. (Type like 5x(2x+3).)** [1 pt]

Solution.
$10x^2 + 15x = 5x(2x + 3)$.

5x(2x+3)

7 **Factor completely: $4x^3 - 8x^2 + 12x$. (Type like 4x(x^2-2x+3).)** [1 pt]

Solution.
$4x^3 - 8x^2 + 12x = 4x(x^2 - 2x + 3)$.

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

8 **Factor: $x^2 + 9x + 20$. (Type like (x+4)(x+5).)** [1 pt]

Solution.
$4 \cdot 5 = 20$ and $4 + 5 = 9$.

(x+4)(x+5)

9 **Factor: $x^2 - 7x + 12$. (Type like (x-3)(x-4).)** [1 pt]

Solution.
$(-3)(-4) = 12$ and $-3 + (-4) = -7$.

(x-3)(x-4)

10 **Factor: $x^2 + 3x - 10$. (Type like (x+5)(x-2).)** [1 pt]

Solution.
$5 \cdot (-2) = -10$ and $5 + (-2) = 3$.

(x+5)(x-2)

11 **Factor: $2x^2 + 7x + 3$. (Type like (2x+1)(x+3).)** [1 pt]

Solution.
$(2x + 1)(x + 3)$ expands to $2x^2 + 7x + 3$.

(2x+1)(x+3)

12 **Factor: $3x^2 - 5x - 2$. (Type like (3x+1)(x-2).)** [1 pt]

Solution.
$(3x + 1)(x - 2)$ expands to $3x^2 - 5x - 2$.

(3x+1)(x-2)

13 **Factor: $9x^2 - 16$. (Type like (3x+4)(3x-4).)** [1 pt]

Solution.
$(3x + 4)(3x - 4)$.

(3x+4)(3x-4)

14 **Factor: $x^2 + 10x + 25$. (Type like (x+5)^2.)** [1 pt]

Solution.
$x^2 + 10x + 25 = (x + 5)^2$.

(x+5)^2

15 **Which is a difference of squares?** [1 pt]

Solution.
$x^2 - 9 = (x + 3)(x - 3)$.

$x^2 - 9$

16 **Factor: $4x^2 - 36$. (Hint: GCF first! Type like 4(x+3)(x-3).)** [1 pt]

Solution.
$4x^2 - 36 = 4(x^2 - 9) = 4(x + 3)(x - 3)$.

4(x+3)(x-3)

Grade chart

Grade	Percent	Points (of 16)
A	90–100%	14.5–16 pts
B	80–89%	13–14 pts
C	70–79%	11.5–12.5 pts
D	60–69%	10–11 pts
F	Below 60%	below 10 pts