

## Unit 3 Practice Test

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### Directions:

This is a 27-question practice test. It does not count toward your overall score, and you may take it as many times as you choose. Once you've completed a take, click on the **Guide** button in the **Results** section below for a study guide covering the questions that you missed.

1) QID: 38590

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Simplify.

$$(4x^3y^5)(-6xy^5)^2$$

- $144x^5y^{15}$
- $-24x^5y^{15}$
- $144x^5y^{30}$
- $-48x^5y^{15}$
- None of the above

2) QID: 38565

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Express with only positive exponents.

$$\frac{(2^3x^5y)^{-2}}{(2^4x^{-2}y^5)^{-4}}$$

Assume that all variables represent nonzero numbers.

- $\frac{x^{18}}{2^{10}y^{18}}$
- $2^{10}x^{18}y^{18}$
- $\frac{2^{10}y^{22}}{x^{18}}$
- $\frac{2^{10}y^{18}}{x^{18}}$
- None of the above

3) QID: 38557

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Simplify.

$$\frac{2a^{-6}b^{-7}}{4a^9b^3}$$

Assume that all variables represent nonzero numbers.

- $\frac{1}{2a^{15}b^{-10}}$
- $2a^{15}b^{-10}$
- $\frac{1}{2a^{15}b^{10}}$
- $2a^{15}b^{10}$
- None of the above

4) QID: 38493

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Express in decimal notation.

$$3.69 \times 10^6$$

- 0.00000369
- 369,000
- 36,900,000
- 3,690,000
- None of the above

5) QID: 72324

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True or false?

$$18x^2 + \frac{1}{6x} - 9$$

is a second degree trinomial.

- true
- false

6) QID: 27109

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Find the product:

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

- $12x^2 + x - 6$
- $12x^2 - x - 6$
- $12x^2 + x + 6$
- $12x^2 - x + 6$
- None of the above

SAMPLE

7) QID: 39329

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Find the product:

$$(5x - 7)^2$$

- $25x^2 - 70x + 49$
- $25x^2 + 49$
- $25x^2 - 35x + 49$
- $25x^2 - 4x + 49$
- None of the above

8) QID: 43227

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Simplify.

$$(5x^2 - 3x - 2)(x^2 - 8x + 9)$$

- $6x^4 - 11x^3 + 67x^2 - 43x + 7$
- $5x^4 + 67x^3 - 11x^2 - 11x + 7$
- $6x^4 + 5x^3 - 11x^2 + 7x - 18$
- $5x^4 - 43x^3 + 67x^2 - 11x - 18$
- None of the above

9) QID: 56290

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Expand.

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

- $8x^3 + 60x^2y - 150xy^2 - 125y^3$
- $8x^3 - 20x^2y + 50xy^2 - 125y^3$
- $2x^3 - 30x^2y - 30xy^2 - 5y^3$
- $8x^3 - 30x^2y - 30xy^2 - 125y^3$
- None of the above

10) QID: 72369

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Factor out the greatest common factor.

$$12a^4b^2 + 18a^3b^3 + 30a^4b^3 + 6a^3b^2$$

- $6a^2b^2(2a^2 + 3ab + 5a^2b + a)$
- $6a^3b^2(2a + 3b + 5ab)$
- $6a^2b^2(2a^2 + 3ab + 5a^2b)$
- $6a^3b^3(2ab + 3 + 5a + b)$
- None of the above

11) QID: 43646

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Factor out the greatest common factor.

$$12a^4 - 18a^3 + 12a^2$$

- $6a(2a^3 - 3a^2 + 2)$
- $6a^2(2a^2 - 3a + 2)$
- $3a^2(4a^2 - 6a + 4)$
- $a(12a^3 - 18a^2 + 12a)$
- None of the above

12) QID: 43485

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Completely factor the polynomial.

$$2x^2 + 12xy - 36y - 6x$$

- $2(x - 6y)(x + 3)$
- $(x + 6y)(x - 3)$
- $2(x^2 + 6xy - 18y - 3x)$
- $2(x + 6y)(x - 3)$
- None of the above

13) QID: 43567

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Factor:

$$2x^3 - 2x^2 - 4x$$

- $2(x^2 + 1)(x - 2)$
- $2x(x + 1)(x - 2)$
- $2x(x^2 + x - 2)$
- $x(2x + 1)(x - 2)$
- None of the above

14) QID: 43579

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Factor:

$$60x^2 + 51x - 30$$

- $-3(5x - 2)(4x + 5)$
- $3(5x - 2)(4x + 5)$
- $3(5x + 2)(4x - 5)$
- $-3(5x + 2)(4x + 5)$
- None of the above

15) QID: 43687

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Factor:

$$10x^2 - 21xy + 9y^2$$

- $(5x - 3y)(2x - 3y)$
- $(5x + 3y)(2x - 3y)$
- $(5x + 3y)(2x + 3y)$
- $(5x - 3y)(2x + 3y)$
- None of the above

16) QID: 44089

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Factor:

$$25x^2 - 70xy + 49y^2$$

- $(5x - 7y)(5x + 7y)$
- $(25x - 7y)(x + 7y)$
- $(5x + 7y)^2$
- $(5x - 7y)^2$
- None of the above

SAMPLE

17) QID: 44179

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Factor:

$$81x^2 - 49y^2$$

- $(9x + 7y)^2$
- $(9x + 7y)(9x - 7y)$
- $(9x - 7y)^2$
- $(9x + 7)(9x - 7)$
- None of the above

18) QID: 44279

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Factor:

$$27f^3 - 8$$

- $(3f - 2)(9f^2 + 4)$
- $(3f + 6)(9f^2 - 2f + 4)$
- $(3f - 2)^3$
- $(3f - 2)(9f^2 + 6f + 4)$
- None of the above

19) QID: 44400

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Factor.

$$x^9 + y^{12}$$

- $(x^3 + y^4)(x^6 - x^3y^4 + y^8)$
- $(x^3 - y^4)(x^6 + 2x^3y^4 + y^8)$
- $(x^3 + y^4)(x^6 + y^8)$
- $(x^3 - y^4)(x^6 + x^3y^4 + y^8)$
- None of the above

20) QID: 45879

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Solve.

$$x^2 + 4x - 12 = 0$$

- 4, 12
- 12, 4
- 6, 2
- 2, 6
- None of the above

SAMPLE

21) QID: 45917

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Solve.

$$4x^2 + 16x - 48 = 0$$

- 4
- 4, 4
- 16
- 16, 16
- None of the above

22) QID: 45811

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Solve.

$$2x^2 + x = 6$$

- $-2, \frac{2}{3}$
- $-\frac{3}{2}, 2$
- $-2, \frac{3}{2}$
- $-\frac{2}{3}, 2$
- None of the above

23) QID: 45468

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Divide.

$$(2x^3 + 3x^2 - 6x + 10) \div (x + 3)$$

- $2x^2 - 3x + 3, R1$
- $2x^2 + 3x + 3$
- $2x^2 - 3x + 3$
- $2x^2 + 3x + 3, R2$
- None of the above

24) QID: 45505

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Divide.

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

- $-x^2 - x + 3, R8$
- $-x^2 - x - 4, R-12$
- $-x^2 - 3x + 11, R34$
- $-x^2 - 3x - 7, R-22$
- None of the above

SAMPLE

25) QID: 48156

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Simplify by synthetic division:

$$\frac{x^4 + 8x^3 - 13x^2 - 92x + 103}{x - 1}$$

- $x^3 + 9x^2 + 4x - 96 - \frac{88}{x - 1}$
- $x^3 + 9x^2 + 9x - 4 - \frac{7}{x - 1}$
- $x^3 + 9x^2 - 4x - 96 + \frac{7}{x - 1}$
- $x^3 + x^2 + 9x - 4 + \frac{88}{x - 1}$
- None of the above

26) QID: 47511

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Use synthetic division to complete the indicated factorization.

$$x^3 - 21x + 20 = (x - 4)( \quad )$$

- $x^2 - 4x - 5$
- $x^2 - 25x + 120$
- $x^2 + 4x - 5$
- $x^2 - 17x - 48$
- None of the above

27) QID: 48946

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Use the remainder theorem, find the remainder of

$$\frac{-2x^3 + 4x^2 - 6x - 8}{x + 2}$$

- 30
- 12
- 36
- 4
- None of the above

SAMPLE