

**Gateway Exam #1 Practice Problems
Factoring Expressions**

1. If you were to factor the expression $ax^2 + bx^2$ you could obtain:

- (a) abx^2
- (b) $2ax^2$
- (c) $(a + b)x^2$
- (d) $2bx^2$
- (e) It is not possible to factor the given expression.

2. If you were to factor the expression $ax + 3x^2$ you could obtain:

- (a) $ax(1 + 3x)$
- (b) $3a(x + x^2)$
- (c) $a(x + 3x^2)$
- (d) $x(a + 3x)$
- (e) It is not possible to factor the given expression.

3. If you were to factor the expression $3u^2 + 9u^3$ you could obtain:

- (a) $3u(1 + 9u)$
- (b) $3u^2(1 + 3u)$
- (c) $u^2(1 + 9u^3)$
- (d) $9u^3(3u + 1)$
- (e) $u^2(3u^2 + 9u^3)$

4. If you were to factor the expression $x^{1/2} + x^{3/2}$ you could obtain:

- (a) $x^{1/2}(1 + x)$
- (b) $x(x^{1/2} + x^{3/2})$
- (c) $x^{3/2}(1 + x)$
- (d) $x^2(x + x^3)$
- (e) $x^{1/2}(1 + x^{3/2})$

5. If you were to factor the expression $xu + 3u^2$ you could obtain:

- (a) $xu(1 + 3u)$
- (b) $x(1 + 3u^2)$
- (c) $4xu$
- (d) $x(u + 3u^2)$
- (e) $u(x + 3u)$

6. If you were to factor the expression $w^{3/2} + w^3$ you could obtain:

- (a) $w(w + w^2)$
- (b) $w^{1/2}(w^3 + w^3)$
- (c) $w^2(w^{1/2} + w)$
- (d) $w^{3/2}(1 + w^{3/2})$
- (e) It is not possible to factor the given expression.

7. If you were to factor the expression $x^2 + 2x + 1$ you could obtain:

- (a) $(x + 1)^2$
- (b) $x^2 + 1^2$
- (c) $(x + 2)(x + 1)$
- (d) $(x + 2)^2$
- (e) $(x + 2)(x + 2)$

8. If you were to factor the expression $u^2 + 6u + 9$ you could obtain:

- (a) $(u + 3)(u + 6)$
- (b) $(u + 4)(u + 5)$
- (c) $(u + 1)(u + 9)$
- (d) $(u + 3)^2$
- (e) $(u + 6)^2$

9. If you were to factor the expression $2x^2 + 4x + 2$ you could obtain:

- (a) $(2x + 1)^2$
- (b) $(2x + 2)^2$
- (c) $2(x + 1)^2$
- (d) $(x + 2)^2$
- (e) $(x + 1)(x + 4)$

10. If you were to factor the expression $x^2 - 1$ you could obtain:

- (a) $(x + 1)^2$
- (b) $(x + 1)(x - 1)$
- (c) $(x - 1)^2$
- (d) $(x + 2)(x - 1)$
- (e) $(x + 1)(x - 2)$

11. If you were to factor the expression $u^2 - 9$ you could obtain:

- (a) $(u - 3)^2$
- (b) $(u + 3)(u - 3)$
- (c) $(u + 3)^2$

(d) $(u + 1)(u + 3)$

(e) $(u + 1)(u - 9)$

12. If you were to factor the expression $4 - w^2$ you could obtain:

(a) $(2 - w)^2$

(b) $(w + 2)(w - 2)$

(c) $(2 + w)(2 - w)$

(d) $(w - 2)^2$

(e) $(4 + w)(4 - w)$

13. If you were to factor the expression $t^2 + 3t + 2$ you could obtain:

(a) $(t + 1)(t + 2)$

(b) $(t + 1)(t + 3)$

(c) $(t + 3)(t - 1)$

(d) $(t + 2)(t - 1)$

(e) $(t + 5)(t + 1)$

14. If you were to factor the expression $3x^2 + 6x + 3$ you could obtain:

(a) $3(x + 1)(x + 2)$

(b) $(x + 3)(x + 2)$

(c) $(3x + 1)(x + 1)$

(d) $3(x + 1)^2$

(e) $(x - 1)(3x + 2)$

15. If you were to factor the expression $q^2 + 7q + 12$ you could obtain:

(a) $(q + 2)(q + 6)$

(b) $(q + 3)^2 + 1$

(c) $(q + 4)(q + 8)$

(d) $(3q + 1)(4q + 2)$

(e) $(q + 3)(q + 4)$

Answers:

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|-------|-------|-------|-------|-------|
| 1. c | 2. d | 3. b | 4. a | 5. e |
| 6. d | 7. a | 8. d | 9. c | 10. b |
| 11. b | 12. c | 13. a | 14. d | 15. e |