Problems for Gateway #1: Factoring Expressions

1. If you were to factor the expression $a \cdot x^2 + b \cdot x^2$ you could obtain:

(a) $a \cdot b \cdot x^2$ **(b)** $2a \cdot x^2$

(c) $(a + b) \cdot x^2$ **(d)** $2b \cdot x^2$

(e) It is not possible to factor the given expression.

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

(a) $a \cdot x \cdot (1 + 3x)$ **(b)** $3a \cdot (x + x^2)$

(c) $a \cdot (x + 3x^2)$ **(d)** $x \cdot (a + 3x)$

(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) $3u \cdot (1 + 9u)$ **(b)** $3u^2 \cdot (1 + 3u)$

(c) $u^2 \cdot (1 + 9u^3)$ **(d)** $9u^3 \cdot (3u + 1)$

(e) $u^2 \cdot (3u^2 + 9u^3)$

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

(a) $x^{1/2} \cdot (1 + x)$ **(b)** $x \cdot (x^{1/2} + x^{3/2})$

(c) $x^{3/2} \cdot (1 + x)$ **(d)** $x^2 \cdot (x + x^3)$

(e) $x^{1/2} \cdot (1 + x^{3/2})$

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

(a) $x \cdot u \cdot (1 + 3u)$ **(b)** $x \cdot (1 + 3u^2)$

(c) $4x \cdot u$ **(d)** $x \cdot (u + 3u^2)$

(e) $u \cdot (x + 3u)$

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

(a) This expression cannot be factored.

(b) $w \cdot (w + w^2)$ **(c)** $w^{1/2} \cdot (w^3 + w^3)$

(d) $w^2 \cdot (w^{1/2} + w)$ **(e)** $w^{3/2} \cdot (1 + w^{3/2})$

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) $(x + 2)\cdot(x + 1)$ **(d)** $(x + 2)^2$

(e) $(x + 2)\cdot(x + 2)$

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

(a) $(u + 3)\cdot(u + 6)$ **(b)** $(u + 4)\cdot(u + 5)$

(c) $(u + 1)\cdot(u + 9)$ **(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) $2\cdot(x + 1)^2$ **(d)** $(x + 2)^2$

(e) $(x + 1)\cdot(x + 4)$

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

(a) $(x + 1)^2$ **(b)** $(x + 1)\cdot(x - 1)$

(c) $(x - 1)^2$ **(d)** $(x + 2)\cdot(x - 1)$

(e) $(x + 1)\cdot(x - 2)$

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

(a) $(u - 3)^2$ **(b)** $(u + 3)\cdot(u - 3)$

(c) $(u + 3)^2$ **(d)** $(u + 1)\cdot(u + 3)$

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

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

(a) $(2 - w)^2$ **(b)** $(w + 2)\cdot(w - 2)$

(c) $(2 + w)\cdot(2 - w)$ **(d)** $(w - 2)^2$

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

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

(a) $(t + 1)\cdot(t + 2)$ **(b)** $(t + 1)\cdot(t + 3)$

(c) $(t + 3)\cdot(t - 1)$ **(d)** $(t + 2)\cdot(t - 1)$

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

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

(a) $3\cdot(x + 1)\cdot(x + 2)$ **(b)** $(x + 3)\cdot(x + 2)$

(c) $(3x + 1)\cdot(x + 1)$ **(d)** $3\cdot(x + 1)^2$

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

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

(a) $(q + 2)\cdot(q + 6)$ **(b)** $(q + 3)^2 + 1$

(c) $(q + 4)\cdot(q + 8)$ **(d)** $(3q + 1)\cdot(4q + 2)$

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

Answers:

1.	C	**2.**	D	**3.**	B	**4.**	A	**5.**	E	**6.**	E
7.	A	**8.**	D	**9.**	C	**10.**	B	**11.**	B	**12.**	C
13.	A	**14.**	D	**15.**	E						