Topic 2 Readiness Practice

1. Given $f(x) = x^2 + 6x - 2$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) discriminant

2. Given $f(x) = x^2 - 2x - 3$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) discriminant

3. Given $f(x) = -x^2 + 4x + 2$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) discriminant

4. Given $f(x) = -\frac{1}{3}x^2 - 2x - 3$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) discriminant

5. Given $f(x) = (x + 3)^2 - 1$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) standard form

6. Given $f(x) = -3(x + 2)^2 + 4$, find the following:

a) vertex

b) axis of symmetry

c) max/min

d) range

e) x-intercepts

f) standard form

7. Multiply the binomials:

a) $(x + 6)(3x - 1)$

b) $-3(5x - 1)(2x - 3)$

c) $(2x + 5)(2x - 5)$

8. Find the solutions:

a) $x^2 + 9 = 0$

b) $4x^2 + 100 = 0$

c) $3x^2 + 48 = 0$

Topic 2-2: Adding, Subtracting, and Multiplying Polynomials

9. $(6x^3 + 4x + x^2 - 7) + (2x^3 - 8x^2 + 3)$

10. $(4a^4 - 6a^3 - 3a^2 + a + 1) + (5a^3 + 7a^2 + 2a - 2)$

11. $(3x^2y^2 + 2xy^2 + 6x^2) - (2x^2y^2 + 3xy^2 - 2x^2)$

12. $(2a^2b^2 + 3ab^2 - 5a^2b) - (3a^2b^2 - 9a^2b + 7ab^2)$

13. $(2m + 5)(3m^2 - 4m + 2)$

14. $(6n^2 - 7)(n^2 + n + 3)$

15. $(m + 1)(m - 2)(m + 4)$

16. $(m + 1)(m^2 - 1)(m + 2)$