

ALGEBRA 2B CHAPTER 6 IN-CLASS BACKWARDS REVIEW

- Use my.hrw.com for video tutorials
- Check out **Objectives** on my website
- Answers are located on my website

6.6

Write the simplest polynomial function with the given zeros.

1. 2, -1, 1

2. 0, -2, $\sqrt{3}$

3. $2i$, 1, -2

4. Solve by finding all roots.

$$x^4 - 5x^3 + 7x^2 - 5x + 6 = 0$$

6.5

Solve by factoring.

1. $x^3 + 9 = x^2 + 9x$

Identify the roots of each equation. State the multiplicity of each root.

2. $5x^4 - 20x^3 + 20x^2 = 0$

3. $x^3 - 12x^2 + 48x - 64 = 0$

6.4

Determine whether the given binomial is a factor of $P(x)$.

1. $x - 1$; $P(x) = 3x^2 - 2x + 5$

2. $x + 2$; $P(x) = x^3 + 2x^2 - x - 2$

Factor each expression.

3. $x^3 + 3x^2 - 9x - 27$

5. $64p^3 - 8q^3$

6.3

1. Divide by using long division.

$$(8x^3 + 6x^2 + 7) \div (x + 2)$$

2. Divide by using synthetic division. $(x^3 - 3x + 5) \div (x + 2)$

3. Use synthetic substitution to evaluate $P(x) = x^3 + 3x^2 - 6$ for $x = 5$ and $x = -1$.

6.2

Find each product.

1. $5jk(k - 2j)$

2. $(2a^3 - a + 3)(a^2 + 3a - 5)$

4. Find the product. $(y - 5)^4$

6.1

Rewrite in standard form. Identify the degree of the polynomial and the number of terms.

1. $9 - x^2 + 2x^5 - 7x$

2. $23 + 4x^3$

3. Subtract $4x^5 - 8x + 2$ from $3x^4 + 10x - 9$. Write your answer in standard form.

4. Evaluate

$$h(x) = 0.4x^2 - 1.2x + 7.5$$

for $x = 0$ and $x = 3$.

5. Describe the graph of $j(x) = 3x^2 - 6x + 6$ and identify the number of real zeros.

ALGEBRA 2B CHAPTER 6 IN-CLASS BACKWARDS REVIEW KEY

6.6

Write the simplest polynomial function with the given zeros.

1. 2, -1, 1 $x^3 - 2x^2 - x + 2$
2. 0, -2, $\sqrt{3}$ $x^4 + 2x^3 - 3x^2 - 6x$
3. $2i$, 1, -2 $x^4 + x^3 + 2x^2 + 4x - 8$
4. Solve by finding all roots.

$$x^4 - 5x^3 + 7x^2 - 5x + 6 = 0 \quad 2, 3, i, -i$$

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6.5

Solve by factoring.

1. $x^3 + 9 = x^2 + 9x$ $-3, 3, 1$

Identify the roots of each equation. State the multiplicity of each root.

2. $5x^4 - 20x^3 + 20x^2 = 0$ 0 and 2 each with multiplicity 2
3. $x^3 - 12x^2 + 48x - 64 = 0$ 4 with multiplicity 3

6.4

Determine whether the given binomial is a factor of $P(x)$.

1. $x - 1$; $P(x) = 3x^2 - 2x + 5$ $P(1) \neq 0$, so $x - 1$ is not a factor of $P(x)$.
2. $x + 2$; $P(x) = x^3 + 2x^2 - x - 2$ $P(-2) = 0$, so $x + 2$ is a factor of $P(x)$.

Factor each expression.

3. $x^3 + 3x^2 - 9x - 27$ $(x + 3)(x + 3)(x - 3)$
4. $x^3 + 3x^2 - 28x - 60$ $(x + 6)(x - 5)(x + 2)$
5. $64p^3 - 8q^3$ $8(2p - q)(4p^2 + 2pq + q^2)$

6.3

1. Divide by using long division.

$$(8x^3 + 6x^2 + 7) \div (x + 2) \quad 8x^2 - 10x + 20 - \frac{33}{x+2}$$

2. Divide by using synthetic division. $(x^3 - 3x + 5) \div (x + 2)$
 $x^2 - 2x + 1 + \frac{3}{x+2}$

3. Use synthetic substitution to evaluate $P(x) = x^3 + 3x^2 - 6$ for $x = 5$ and $x = -1$. **194; -4**

6.2

Find each product.

1. $5jk(k - 2j)$ **$5jk^2 - 10j^2k$**

2. $(2a^3 - a + 3)(a^2 + 3a - 5)$ **$2a^5 + 6a^4 - 11a^3 + 14a - 15$**

4. Find the product. $(y - 5)^4$ **$y^4 - 20y^3 + 150y^2 - 500y + 625$**

6.1

Rewrite in standard form. Identify the degree of the polynomial and the number of terms.

1. $9 - x^2 + 2x^5 - 7x$ **$2x^5 - x^2 - 7x + 9$; 5; 4**

2. $23 + 4x^3$ **$4x^3 + 23$; 3; 2**

3. Subtract $4x^5 - 8x + 2$ from $3x^4 + 10x - 9$. Write your answer in standard form. **$-4x^5 + 3x^4 + 18x - 11$**

4. Evaluate

$$h(x) = 0.4x^2 - 1.2x + 7.5$$

$$\text{for } x = 0 \text{ and } x = 3. \quad \mathbf{7.5; 7.5}$$

5. Describe the graph of $j(x) = 3x^2 - 6x + 6$ and identify the number of real zeros. **From left to right, the graph decreases then increases, but it never crosses the x -axis; no real zeros.**