1. The equation $h = 241m^{-\frac{1}{4}}$ predicts a mammal's heart rate, h, in beats per minute, based on it's mass, m, in kilograms. What is the predicted heart rate, in beats per minute, of a polar bear with a mass of 326 kilograms?

A 57

B 67

C 82

D 92

2. What is the logarithmic form of the equation $y = 20^{-\frac{3}{2}}$?

A $\log_{20} y = -\frac{3}{2}$

B $\log_{\frac{3}{2}} 20 = y$

C $-\log_{\frac{3}{2}} y = 20$

D $\log_{20}\left(-\frac{3}{2}\right) = y$

3. What are the values of x and y when $(3 - 2i) - (x + yi) = (2 - 3i)$?

A $x = -1, y = -i$

B $x = 1, y = i$

C $x = 1, y = 5$

D $x = 1, y = 1$

4. Simplify: $\frac{1+2i}{2-3i}$

A $\frac{8+i}{7}$

B $\frac{-4+7i}{13}$

C $\frac{8+7i}{7}$

D $-4+7i$

5. Simplify: $\dfrac{\frac{1}{x}+1}{\frac{1}{x}-1}$

A $\dfrac{1+x}{1-x}$

B $\dfrac{1-x}{1+x}$

C $\dfrac{1}{x}$

D $^{-}1$

6. Expand: $(x+y)^4$

A x^4+y^4

B $x^4+4xy+y^4$

C $x^4+4x^3y+4x^2y^2+4xy^3+y^4$

D $x^4+4x^3y+6x^2y^2+4xy^3+y^4$

7. Matrix G shows the gallons of milk sold at a dairy over a two-week period. Matrix D shows the dollar amount per gallon.

Gallons of Milk Sold

$G =$	Whole	Low Fat	Skim
Week 1	181	450	102
Week 2	194	530	127

Dollar Amount per Gallon

$D =$	Revenues ($)	Advertising Fee ($)
Whole	2.89	0.29
Low Fat	2.79	0.32
Skim	2.69	0.35

If matrix P is the product of G and D, which element in matrix P represents the total advertising fees for Week 1?

$$P = G \times D = \begin{bmatrix} p_{11} & p_{12} \\ p_{21} & p_{22} \end{bmatrix}$$

A p_{11}

B p_{21}

C p_{12}

D p_{22}

End of Goal 1 Sample Items

Answers to EOC Algebra II Sample Items

Goal 1

1. **Objective 1.01**
   Simplify and perform operations with rational exponents and logarithms (common and natural) to solve problems.
   Thinking Skill: Integrating **Correct Answer:** A

2. **Objective 1.01**
   Simplify and perform operations with rational exponents and logarithms (common and natural) to solve problems.
   Thinking Skill: Analyzing **Correct Answer:** A

3. **Objective 1.02**
   Define and compute with complex numbers.
   Thinking Skill: Applying **Correct Answer:** D

4. **Objective 1.02**
   Define and compute with complex numbers.
   Thinking Skill: Applying **Correct Answer:** B

5. **Objective 1.03**
   Operate with algebraic expressions (polynomial, rational, complex fractions) to solve problems.
   Thinking Skill: Applying **Correct Answer:** A

6. **Objective 1.03**
   Operate with algebraic expressions (polynomial, rational, complex fractions) to solve problems.
   Thinking Skill: Applying **Correct Answer:** D

7. **Objective 1.04**
   Operate with matrices to model and solve problems.
   Thinking Skill: Integrating **Correct Answer:** C