1. The resting heart rate (h), in beats per minute, for a mammal is related to its mass (m) in kilograms by the equation $h = 241m^{-\frac{1}{4}}$. What is the ***approximate*** resting heart rate, in beats per minute, of a polar bear weighing 326 kilograms?

   A 57

   B 67

   C 82

   D 92

2. Atmospheric pressure can be determined by using the equation $P = 14.7(10)^{-0.02h}$, where P is the atmospheric pressure in pounds per square inch (psi) and h is the elevation above sea level in miles. What is the ***approximate*** elevation if the atmospheric pressure is 12.3 psi?

   A 3.7 miles below sea level

   B 3.9 miles above sea level

   C 8.3 miles above sea level

   D 13.2 miles above sea level

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

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

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

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

   D $-4+7i$

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

5. Simplify: $\frac{2}{3+y}-\frac{1}{y}$

A $\frac{3y-3}{y(y+3)}$

B $\frac{y-3}{y(y+3)}$

C $\frac{^{-}1}{y}$

D $\frac{1}{3+2y}$

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

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

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

C $\frac{1}{x}$

D $^{-}1$

7. The distance required for a car to stop is directly proportional to the square of its velocity. If a car can stop in 112.5 meters at 15 kilometers per hour, how many meters are needed to stop at 25 kilometers per hour?

A 250.75

B 298.00

C 312.50

D 337.50

End of Goal 1 Sample Items

Answers to EOC Algebra II Sample Items

Goal 1

1. **Objective 1.01**
   Operate with numbers to solve problems. a) Simplify and perform operations with radical expressions. b) Simplify expressions involving rational exponents. c) Use logarithms and exponents to solve problems. d) Define complex numbers and perform basic operations with them.
   Thinking Skill: Integrating **Correct Answer:** A

2. **Objective 1.01**
   Operate with numbers to solve problems. a) Simplify and perform operations with radical expressions. b) Simplify expressions involving rational exponents. c) Use logarithms and exponents to solve problems. d) Define complex numbers and perform basic operations with them.
   Thinking Skill: Integrating **Correct Answer:** B

3. **Objective 1.01**
   Operate with numbers to solve problems. a) Simplify and perform operations with radical expressions. b) Simplify expressions involving rational exponents. c) Use logarithms and exponents to solve problems. d) Define complex numbers and perform basic operations with them.
   Thinking Skill: Applying **Correct Answer:** B

4. **Objective 1.02**
   Operate with algebraic expressions to solve problems. a) Expand powers of binomials using Pascal's triangle or the binomial theorem. b) Divide one polynomial by another of a lower degree using either synthetic division or the division algorithm. c) Factor polynomials and other algebraic expressions completely over the real numbers. d) Find sums, differences, products and quotients of rational algebraic expressions. e) Simplify complex fractions. f) Solve problems using direct, inverse, combined and joint variation.
   Thinking Skill: Applying **Correct Answer:** D

5. **Objective 1.02**
   Operate with algebraic expressions to solve problems. a) Expand powers of binomials using Pascal's triangle or the binomial theorem. b) Divide one polynomial by another of a lower degree using either synthetic division or the division algorithm. c) Factor polynomials and other algebraic expressions completely over the real numbers. d) Find sums, differences, products and quotients of rational algebraic expressions. e) Simplify complex fractions. f) Solve problems using direct, inverse, combined and joint variation.
   Thinking Skill: Applying **Correct Answer:** B

Goal 1

6. Objective 1.02

Operate with algebraic expressions to solve problems. a) Expand powers of binomials using Pascal's triangle or the binomial theorem. b) Divide one polynomial by another of a lower degree using either synthetic division or the division algorithm. c) Factor polynomials and other algebraic expressions completely over the real numbers. d) Find sums, differences, products and quotients of rational algebraic expressions. e) Simplify complex fractions. f) Solve problems using direct, inverse, combined and joint variation.

Thinking Skill: Applying **Correct Answer:** A

7. Objective 1.02

Operate with algebraic expressions to solve problems. a) Expand powers of binomials using Pascal's triangle or the binomial theorem. b) Divide one polynomial by another of a lower degree using either synthetic division or the division algorithm. c) Factor polynomials and other algebraic expressions completely over the real numbers. d) Find sums, differences, products and quotients of rational algebraic expressions. e) Simplify complex fractions. f) Solve problems using direct, inverse, combined and joint variation.

Thinking Skill: Applying **Correct Answer:** C

