1) Evaluate the algebraic expression below for the values \( x = -6 \) and \( y = 3 \).

\[
x^2 - 4(x - y) - 2
\]

\[
A \quad -2 \\
B \quad 22 \\
C \quad 46 \\
D \quad 70 \\
E \quad -74
\]

2) Write the English phrase as an algebraic expression, letting \( n \) represent the number.

Seven decreased by four times the sum of a number and five

\[
A \quad 4(n + 5) - 7 \\
B \quad 7 - 4(n + 5) \\
C \quad 4(n - 5) - 7 \\
D \quad 7 - 4n + 5 \\
E \quad 7 - 4n - 5
\]

3) Simplify this exponential expression.

\[
\left( \frac{3x^2}{y^2} \right)^{-2} \left( \frac{2x^4}{y} \right)^3
\]

\[
A \quad \frac{8x^8y}{9} \\
B \quad \frac{2x^8}{3y} \\
C \quad \frac{6x^7}{y^3} \\
D \quad \frac{-36x^8}{y} \\
E \quad \text{None of the above.}
\]
4) There are approximately \((5.256 \times 10^4)\) minutes in a year. If Americans consume \((6 \times 10^3)\) pounds of chocolate per minute, approximately how many pounds of chocolate do Americans consume in a year?

- A 31,536,000 pounds
- B 8,760,000 pounds
- C 31,536,000,000,000 pounds
- D 315,360,000 pounds
- E 87,600,000 pounds

5) Add/subtract where possible. Write answer in simplest form.

\[7\sqrt{54} - 3\sqrt{150} + 9\sqrt{96} + 4\sqrt{6}\]

- A \(76\sqrt{6}\)
- B \(46\sqrt{6}\)
- C \(17\sqrt{6}\)
- D \(19\sqrt{6}\)
- E None of the above.

6) Evaluate: \(64^{(-2/3)}\)

- A \(\frac{1}{16}\)
- B \(\frac{1}{512}\)
- C \(-16\)
- D \(-\frac{1}{16}\)
- E \(-512\)
7) Which product(s) is(are) true?

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<table>
<thead>
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<tbody>
<tr>
<td>I</td>
<td>((4 - 3x)(4 + 3x) = 16 - 9x^2)</td>
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<tr>
<td>II</td>
<td>((2y - 3)^2 = 4y^2 + 9)</td>
</tr>
<tr>
<td>III</td>
<td>((4a + 1)(2a^2 - 3a + 5) = 8a^3 - 10a^2 + 17a + 5)</td>
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A  I and II only  
B  I and III only  
C  II and III only  
D  I, II, and III  
E  I only

8) Which is one factor of \(6x^2 - 11xy - 10y^2\)?

A  \(3x - 2y\)  
B  \(2x + 5y\)  
C  \(6x + 5y\)  
D  \(x - 5y\)  
E  \(2x - 5y\)

9) Factor \(12x^3 + 8x^2 - 27x - 18\) completely. One of the polynomial’s factors is which?

A  \(3x + 2\)  
B  \(3x - 2\)  
C  \(2x + 1\)  
D  \(4x^2 + 9\)  
E  None of the above.
10) Multiply. Write answer in simplest form.

\[
\frac{x^2 - 9}{x^3 - 2x^2 - 15x} \cdot \frac{2x^3 + x^2}{2x^2 - 5x - 3}
\]

11) Add: \( \frac{2}{x^2 - x} + \frac{5}{x^2 - 1} \) Simplify answer.

12) Simplify this complex rational expression.

\[
\frac{2 + \frac{1}{y}}{4 - \frac{1}{y^2}}
\]
13) Perform the operations.

\[(4x^2 - 2x + 3) - (7x - x^2 + 8) - (-5x^2 + 6x - 9)\]

A \(10x^2 - 15x + 4\)
B \(10x^2 - x + 4\)
C \(8x^2 - 15x + 4\)
D \(8x^2 - 15x + 20\)
E None of the above.

14) Which statement is false?

A \(-|12 - 1| = -23\)
B \(|\pi - 4| = 4 - \pi\)
C The polynomial \(7x^2y - 4x^4y^2 - 3x^3\) has degree 6.
D \(2(x + 3) + y(x + 3) = (x + 3)(2 + y)\)
E \(-5 > -3\)

15) Rationalize the denominator and simplify.

\[\frac{12}{3 + \sqrt{3}}\]

A \(2\sqrt{3}\)
B \(6 - 2\sqrt{3}\)
C \(\frac{4\sqrt{3}}{3}\)
D \(6 - \sqrt{3}\)
E \(6 + 2\sqrt{3}\)