Problem 1:

Given the polynomial expression $3x^7 - 18x^3 + 9x^2$, factor out the Greatest Common Factor.

Problem 2:

Given the polynomial expression $15x^2 - 5x$, factor out the Greatest Common Factor.

Problem 3:

Given the polynomial expression $8x^2 + 4$, factor out the Greatest Common Factor.

Problem 4:

Given the polynomial expression $6x^3 - 8x^2$, factor out the Greatest Common Factor.

Problem 5:

Given the polynomial expression $kx^2 - ktx + 3x - 3t$, where $k$ and $t$ are constants, factor out the Greatest Common Factor in the two middle terms.

Problem 6:

Given the polynomial expression $2x(x - 3) - (x - 3)$, factor out the Greatest Common Factor.

Problem 7:

Given the polynomial expression $25q^2(m + 1)^2 - 15q(m + 1)^2 + 5(m + 1)^2$, factor out the Greatest Common Factor.

Problem 8:

Given the polynomial expression $15x^2(r + 3)^3 - 33x^2(r + 3)^2$, factor out the Greatest Common Factor.
Problem 9:

Try to factor the polynomial expression $x^3 - 4x^2 + 2x - 8$ relative to the integers using the **Grouping Method**.

Problem 10:

Try to factor the polynomial expression $3x^3 + 2x^2 - 6x + 2$ relative to the integers using the **Grouping Method**.

Problem 11:

Try to factor the trinomial $x^2 - 5x + 6$ relative to the integers.

Problem 12:

Try to factor the trinomial $x^2 + 5x + 6$ relative to the integers.

Problem 13:

Try to factor the trinomial $x^2 - 5x - 6$ relative to the integers.

Problem 14:

Try to factor the trinomial $x^2 + 5x - 6$ relative to the integers.

Problem 15:

Try to factor the trinomial $x^2 - 10x + 25$ relative to the integers.

Problem 16:

Try to factor the trinomial $x^2 + 6x + 9$ relative to the integers.

Problem 17:

Try to factor the trinomial $x^2 + 2x + 4$ relative to the integers.

Problem 18:

Try to factor the trinomial $2x^2 + 7x + 6$ relative to the integers.

Problem 19:

Try to factor the trinomial $6x^2 + x - 2$ relative to the integers.
Problem 20:

Factor the following "special" polynomials relative to the integers.

(a) \(x^2 - 9\)
(b) \(k^2 - m^2\)
(c) \(x^3 - 8\)
(d) \(x^3 + 125\)

Problem 21:

Factor \(x^4 - 8x^2 - 9\) relative to the integers.

SOLUTIONS
You can find detailed solutions below the link for this problem set!

<p>| | | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>3x^2(x^5 - 6x + 3)</td>
<td>2.</td>
</tr>
<tr>
<td>4.</td>
<td>2x^2(3x - 4)</td>
<td>5.</td>
</tr>
<tr>
<td>7.</td>
<td>5(m + 1)^2(5q^2 - 3q + 1)</td>
<td>8.</td>
</tr>
<tr>
<td>10.</td>
<td>Not factorable relative to the integers.</td>
<td>11.</td>
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<tr>
<td>13.</td>
<td>(x - 6)(x + 1)</td>
<td>14.</td>
</tr>
<tr>
<td>16.</td>
<td>(x + 3)(x - 3) = (x + 3)^2</td>
<td>17.</td>
</tr>
<tr>
<td>19.</td>
<td>(2x - 1)(3x + 2)</td>
<td>20.</td>
</tr>
<tr>
<td>21.</td>
<td>(x - 3)(x + 3)(x^2 + 1)</td>
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