


















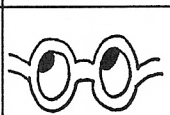

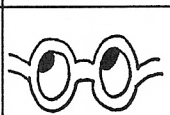









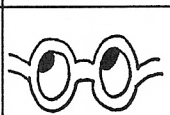









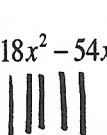

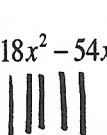
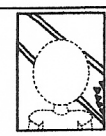
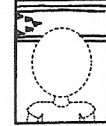
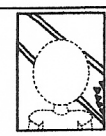
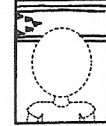



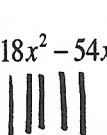
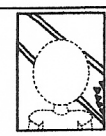
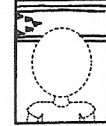
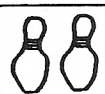
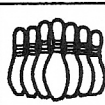
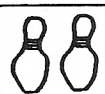
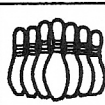




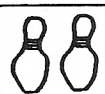
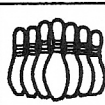




## Lesson 3: Operations on Polynomials

**Directions:** Solve each problem. **SHOW YOUR STEPS!!!**

<p><b>1.</b> <math>(-3x^2 + 5x - 3) - 4(5x^2 + 2x - 3) =</math></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>-23x^2 - 3x + 9</math> draw the following hair.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>-23x^2 - 13x + 9</math> draw the following hair.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $-23x^2 - 3x + 9$ draw the following hair.		(b) If your answer is $-23x^2 - 13x + 9$ draw the following hair.		<p><b>2.</b> <math>(2x^2 - x + 7) + 2(3x^2 + 3x - 2) =</math></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>5x^2 + 7x + 3</math> draw the following ears.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>8x^2 + 5x + 3</math> draw the following ears.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $5x^2 + 7x + 3$ draw the following ears.		(b) If your answer is $8x^2 + 5x + 3$ draw the following ears.		<p><b>3.</b> <math>-3(4x^2 + 2x + 5) - 5(-2x^2 - x + 4) =</math></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>-2x^2 + x - 11</math> draw the following line INSIDE each ear.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>-2x^2 - x - 35</math> draw the following curve INSIDE each ear.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $-2x^2 + x - 11$ draw the following line INSIDE each ear.		(b) If your answer is $-2x^2 - x - 35$ draw the following curve INSIDE each ear.	
(a) If your answer is $-23x^2 - 3x + 9$ draw the following hair.														
(b) If your answer is $-23x^2 - 13x + 9$ draw the following hair.														
(a) If your answer is $5x^2 + 7x + 3$ draw the following ears.														
(b) If your answer is $8x^2 + 5x + 3$ draw the following ears.														
(a) If your answer is $-2x^2 + x - 11$ draw the following line INSIDE each ear.														
(b) If your answer is $-2x^2 - x - 35$ draw the following curve INSIDE each ear.														
<p><b>4.</b> Which polynomial represents <math>\frac{1}{2}(-8x^2 - 16x - 4) + 3(9x^2 + 12x - \frac{1}{2})</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>23x^2 + 28x - \frac{7}{2}</math> draw the following eyes and glasses.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>23x^2 + 20x - \frac{7}{2}</math> draw the following eyes and glasses.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $23x^2 + 28x - \frac{7}{2}$ draw the following eyes and glasses.		(b) If your answer is $23x^2 + 20x - \frac{7}{2}$ draw the following eyes and glasses.		<p><b>5.</b> Which polynomial represents <math>(2x^2 + 3x - 1)(3x + 2)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>6x^3 + 6x - 1</math> draw the following nose.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>6x^3 + 13x^2 + 3x - 2</math> draw the following nose.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $6x^3 + 6x - 1$ draw the following nose.		(b) If your answer is $6x^3 + 13x^2 + 3x - 2$ draw the following nose.		<p><b>6.</b> Which polynomial represents <math>(5x^2 + x + 3)(5x - 7)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>25x^3 - 30x^2 + 8x - 21</math> draw the following mouth.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>25x^3 - 35x^2 + 15x - 21</math> draw the following mouth.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $25x^3 - 30x^2 + 8x - 21$ draw the following mouth.		(b) If your answer is $25x^3 - 35x^2 + 15x - 21$ draw the following mouth.	
(a) If your answer is $23x^2 + 28x - \frac{7}{2}$ draw the following eyes and glasses.														
(b) If your answer is $23x^2 + 20x - \frac{7}{2}$ draw the following eyes and glasses.														
(a) If your answer is $6x^3 + 6x - 1$ draw the following nose.														
(b) If your answer is $6x^3 + 13x^2 + 3x - 2$ draw the following nose.														
(a) If your answer is $25x^3 - 30x^2 + 8x - 21$ draw the following mouth.														
(b) If your answer is $25x^3 - 35x^2 + 15x - 21$ draw the following mouth.														
<p><b>7.</b> Which expression is equivalent to <math>(2x^3 - x)(3x^2 - x + 4)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>6x^5 - 2x^4 + 5x^3 + x^2 - 4x</math> draw three freckles on EACH CHEEK.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>6x^5 + 2x^4 + 5x^3 + x^2 - 4x</math> draw three freckles on the NOSE.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $6x^5 - 2x^4 + 5x^3 + x^2 - 4x$ draw three freckles on EACH CHEEK.		(b) If your answer is $6x^5 + 2x^4 + 5x^3 + x^2 - 4x$ draw three freckles on the NOSE.		<p><b>8.</b> Which expression is equivalent to <math>(2x^5 + 6x)(2x^2 + 3x - 9)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>4x^7 + 6x^6 - 18x^5 - 12x^3 - 18x^2 - 54x</math> draw horizontal stripes on the shirt.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>4x^7 + 6x^6 - 18x^5 + 12x^3 + 18x^2 - 54x</math> draw vertical stripes on the shirt.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $4x^7 + 6x^6 - 18x^5 - 12x^3 - 18x^2 - 54x$ draw horizontal stripes on the shirt.		(b) If your answer is $4x^7 + 6x^6 - 18x^5 + 12x^3 + 18x^2 - 54x$ draw vertical stripes on the shirt.		<p><b>9.</b> Which expression is equivalent to <math>(2x + 1)(2x - 1)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>4x^2 - 1</math> draw the following lane in the background.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>4x^2 - 4x - 1</math> draw the following lane in the background.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $4x^2 - 1$ draw the following lane in the background.		(b) If your answer is $4x^2 - 4x - 1$ draw the following lane in the background.	
(a) If your answer is $6x^5 - 2x^4 + 5x^3 + x^2 - 4x$ draw three freckles on EACH CHEEK.														
(b) If your answer is $6x^5 + 2x^4 + 5x^3 + x^2 - 4x$ draw three freckles on the NOSE.														
(a) If your answer is $4x^7 + 6x^6 - 18x^5 - 12x^3 - 18x^2 - 54x$ draw horizontal stripes on the shirt.														
(b) If your answer is $4x^7 + 6x^6 - 18x^5 + 12x^3 + 18x^2 - 54x$ draw vertical stripes on the shirt.														
(a) If your answer is $4x^2 - 1$ draw the following lane in the background.														
(b) If your answer is $4x^2 - 4x - 1$ draw the following lane in the background.														
<p><b>10.</b> Which expression is equivalent to <math>(3y - 2)(3y + 2)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>9y^2 - 12y - 4</math> draw TWO pins on the lane.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>9y^2 - 4</math> draw MANY pins on the lane.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $9y^2 - 12y - 4$ draw TWO pins on the lane.		(b) If your answer is $9y^2 - 4$ draw MANY pins on the lane.		<p><b>11.</b> Which expression is equivalent to <math>(-3x + 5)(2x^2 - 3)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>-6x^3 - 15</math> draw THREE bowling balls in the background.</td> <td style="width: 30%; text-align: center; padding: 2px;"></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>-6x^3 + 10x^2 + 9x - 15</math> draw ONE bowling ball in the background.</td> <td style="text-align: center; padding: 2px;"></td> </tr> </table>	(a) If your answer is $-6x^3 - 15$ draw THREE bowling balls in the background.		(b) If your answer is $-6x^3 + 10x^2 + 9x - 15$ draw ONE bowling ball in the background.		<p><b>12.</b> Which expression is equivalent to <math>(2y^3 + 5)(4y - 2)</math>?</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">(a) If your answer is <math>8y^4 - 10</math> write the SPARE word in the background.</td> <td style="width: 30%; text-align: center; padding: 2px;"><b>SPARE</b></td> </tr> <tr> <td style="padding: 2px;">(b) If your answer is <math>8y^4 - 4y^3 + 20y - 10</math> write the word STRIKE in the background.</td> <td style="text-align: center; padding: 2px;"><b>STRIKE</b></td> </tr> </table>	(a) If your answer is $8y^4 - 10$ write the SPARE word in the background.	<b>SPARE</b>	(b) If your answer is $8y^4 - 4y^3 + 20y - 10$ write the word STRIKE in the background.	<b>STRIKE</b>
(a) If your answer is $9y^2 - 12y - 4$ draw TWO pins on the lane.														
(b) If your answer is $9y^2 - 4$ draw MANY pins on the lane.														
(a) If your answer is $-6x^3 - 15$ draw THREE bowling balls in the background.														
(b) If your answer is $-6x^3 + 10x^2 + 9x - 15$ draw ONE bowling ball in the background.														
(a) If your answer is $8y^4 - 10$ write the SPARE word in the background.	<b>SPARE</b>													
(b) If your answer is $8y^4 - 4y^3 + 20y - 10$ write the word STRIKE in the background.	<b>STRIKE</b>													