

Honors Algebra I  
Ch. 9 Review

Name: Key  
Period:

FIND SOMEONE WHO...

<p>1. Can solve: <math>3x^2 + 11x - 4 = 0</math>  <math>(3x-1)(x+4) = 0</math>  <math>3x-1=0</math>   <math>x+4=0</math>  <math>x = \frac{1}{3}</math>   <math>x = -4</math></p> <p>Name: _____ Initials: _____</p>	<p>2. Can factor: <math>x^3 - 4x^2 - 21x</math>  <math>x(x^2 - 4x - 21)</math>  <math>x(x-7)(x+3)</math></p> <p>Name: _____ Initials: _____</p>
<p>3. Can name the polynomial by degree and number of terms, and identify the leading coefficient: <math>-1 + 2x</math>  <u>linear binomial</u>  <u>L.C. = +2</u></p> <p>Name: _____ Initials: _____</p>	<p>4. Can expand or multiply: <math>(2x^2 - 5)^2</math>  <math>(2x^2 - 5)(2x^2 - 5)</math>  <math>4x^4 - 10x^2 - 10x^2 + 25</math>  <math>4x^4 - 20x^2 + 25</math></p> <p>Name: _____ Initials: _____</p>
<p>5. Can factor out the GCF of: <math>ab^2c + ab^3 + b^4c</math>  <math>b^2(ac + ab + b^2c)</math></p> <p>Name: _____ Initials: _____</p>	<p>6. Can factor: <math>(3x^3 + 8x^2) - 12x - 32</math>  <math>x^2(3x + 8) - 4(3x + 8)</math>  <math>(3x + 8)(x^2 - 4)</math>  <math>(3x + 8)(x + 2)(x - 2)</math></p> <p>Name: _____ Initials: _____</p>
<p>7. Add the polynomials: <math>(5x^2 - x + 1) + (2 + x^3 + x)</math>  <math>x^3 + 5x^2 + 3</math></p> <p>Name: _____ Initials: _____</p>	<p>8. Can solve: <math>x^2 - 10x + 25 = 0</math>  <math>(x-5)(x-5) = 0</math>  <math>x-5=0</math>   <math>x-5=0</math>  <math>x=5</math>   <math>x=5</math>  <math>x = 5</math></p> <p>Name: _____ Initials: _____</p>
<p>9. Can factor: <math>(x^4 + 6x^3) - 4x - 24</math>  <math>x^3(x+6) - 4(x+6)</math>  <math>(x^3 - 4)(x+6)</math></p> <p>Name: _____ Initials: _____</p>	<p>10. Can solve: <math>10x^2 + 9x + 2 = 0</math>  <math>(5x+2)(2x+1) = 0</math>  <math>5x+2=0</math>   <math>2x+1=0</math>  <math>5x=-2</math>   <math>2x = \frac{-1}{2}</math>  <math>x = -\frac{2}{5}</math>   <math>x = -\frac{1}{2}</math></p> <p>Name: _____ Initials: _____</p>

Initials:

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11. Can expand:  $(x-1)(x^3 - 2x^2 + 4x + 3)$

$$x^4 - 2x^3 + 4x^2 + 3x - x^3 + 2x^2 - 4x - 3$$

$$x^4 - 3x^3 + 6x^2 - x - 3$$

Name:

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12. Can name the polynomial by degree and number of terms, and identify the leading coefficient:  $5x^3yz^3$   $1+1+1=3$

**cubic monomial**  
L.C. = 5

Name:

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13. Can factor out the GCF of:

$$3x^2y^3 - 27xy^2 + 81x^4y^5$$

$$3xy^2(xy - 9 + 27x^3y^3)$$

Name:

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14. Factor:  $(3x^3 + 4x^2) - 15x - 20$

$$x^2(3x + 4) - 5(3x + 4)$$

$$(x^2 - 5)(3x + 4)$$

Name:

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15. Solve:  $(2x^3 - x^2 - 18x + 9) = 0$

$$x^2(2x - 1) - 9(2x - 1) = 0$$

$$(x^2 - 9)(2x - 1) = 0$$

$$(x + 3)(x - 3)(2x - 1) = 0$$

$$x + 3 = 0 \quad x - 3 = 0 \quad 2x - 1 = 0$$

$$x = -3 \quad x = 3 \quad x = \frac{1}{2}$$

Name:

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16. Subtract the polynomials:  $(x^2 - 4x^3 + 8) - (x - 4)$

$$x^2 - 4x^3 + 8 - x + 4$$

$$-4x^3 + x^2 - x + 12$$

Name:

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17. Factor:  $6x^2 - x - 15$

$$(3x - 5)(2x + 3)$$

Name:

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18. Can solve:  $16x^4 - 4x^2 = 0$

$$4x^2(4x^2 - 1) = 0$$

$$4x^2(2x + 1)(2x - 1) = 0$$

$$\frac{4x^2}{4} = \frac{0}{4}$$

$$\sqrt{x^2} = \sqrt{0}$$

$$x = 0$$

$$2x + 1 = 0$$

$$x = -\frac{1}{2}$$

$$2x - 1 = 0$$

$$x = \frac{1}{2}$$

Name:

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19. Solve: A diver jumps off a diving board 20 feet above the water with an initial upward velocity of 4 feet per second. How long does it take him to hit the water? (use the equation  $H = -16t^2 + v_0t + h_0$  to solve)

$$v_0 = 4 \text{ ft/s} \quad 0 = -16t^2 + 4t + 20$$

$$h_0 = 20 \text{ ft} \quad 0 = -4(4t^2 + t - 5)$$

$$t = 0 \text{ (water)} \quad n = -1 \quad \dots$$

20. Solve: A rocket is fired from the ground with an initial upward velocity of 160 feet per second. How long will it take for the rocket to reach 400 feet? (use the equation  $H = -16t^2 + v_0t + h_0$  to solve)

$$v_0 = 160 \text{ ft/s} \quad 400 = -16t^2 + 160t + 0$$

$$h_0 = 0 \text{ (ground)} \quad -400$$

$$H = 400 \text{ ft} \quad \frac{400}{-400}$$

$$t = ? \quad \underline{\quad\quad\quad}$$

$$0 = -16t^2 + 160t - 400$$

$$h_0 = 20 \text{ ft} \quad 0 = -4(4t^2 + t - 5)$$

$$H = 0 \text{ (water)} \quad 0 = -4(4t + 5)(t - 1)$$

$$t = ?$$

$$4t + 5 = 0$$

$$t = \frac{-5}{4}$$

$$t - 1 = 0$$

$$t = 1 \text{ sec}$$

Name:

Initials:

$$h_0 = 0 \text{ (ground)} - 400 \quad -400$$

$$H = 400 \text{ ft} \quad 0 = -16t^2 + 160t - 400$$

$$t = ? \quad 0 = -16(t^2 - 10t + 25)$$

$$0 = -16(t - 5)(t - 5)$$

$$0 = t - 5$$

$$t = 5$$

$$0 = t - 5$$

$$t = 5 \text{ sec}$$

Name:

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