STAAR ALGEBRA I REFERENCE MATERIALS



FACTORING

| Perfect square trinomials $a^2 + 2ab + b^2 = (a + b)^2$ $a^2 - 2ab + b^2 = (a - b)^2$ Difference of squares $a^2 - b^2 = (a - b)(a + b)$ PROPERTIES OF EXPONENTS Product of powers $a^m a^n = a^{(m+n)}$ Quotient of powers $a^m a^n = a^{(m-n)}$ Power of a power $(a^m)^n = a^{mn}$ Rational exponent $a^{-n} = \frac{1}{a^n}$ LINEAR EQUATIONSStandard form $Ax + By = C$ Slope-intercept form $y = mx + b$ Point-slope form $y - y_1 = m(x - x_1)$ Slope of a line $m = \frac{y_2 - y_1}{x_2 - x_1}$ QUADRATIC EQUATIONSStandard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ Axis of symmetry $x = \frac{-b}{2a}$ | | |
|--|---------------------------|--|
| PROPERTIES OF EXPONENTSProduct of powers $a^m a^n = a^{(m+n)}$ Quotient of powers $\frac{a^m}{a^n} = a^{(m-n)}$ Quotient of powers $(a^m)^n = a^{mn}$ Power of a power $(a^m)^n = a^{mn}$ Rational exponent $a^{\frac{m}{n}} = \sqrt[n]{a^m}$ Negative exponent $a^{-n} = \frac{1}{a^n}$ LINEAR EQUATIONSStandard form $Ax + By = C$ Slope-intercept form $y = mx + b$ Point-slope form $y - y_1 = m(x - x_2)$ Slope of a line $m = \frac{y_2 - y_1}{x_2 - x_1}$ QUADRATIC EQUATIONSStandard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Perfect square trinomials | |
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| Power of a power $(a^m)^n = a^{mn}$ Rational exponent $a^{\frac{m}{n}} = \sqrt[q]{a^m}$ Negative exponent $a^{-n} = \frac{1}{a^n}$ LINEAR EQUATIONSStandard form $Ax + By = C$ Slope-intercept form $y = mx + b$ Point-slope form $y - y_1 = m(x - x_1)$ Slope of a line $m = \frac{y_2 - y_1}{x_2 - x_1}$ QUADRATIC EQUATIONSStandard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Product of powers | $a^m a^n = a^{(m+n)}$ |
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| Standard form $Ax + By = C$ Slope-intercept form $y = mx + b$ Point-slope form $y - y_1 = m(x - x_1)$ Slope of a line $m = \frac{Y_2 - Y_1}{x_2 - x_1}$ QUADRATIC EQUATIONSStandard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Negative exponent | $a^{-n} = \frac{1}{a^n}$ |
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| Slope of a line $m = \frac{Y_2 - Y_1}{x_2 - x_1}$ QUADRATIC EQUATIONS Standard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Slope-intercept form | y = mx + b |
| QUADRATIC EQUATIONSStandard form $f(x) = ax^2 + bx + c$ Vertex form $f(x) = a(x - h)^2 + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Point-slope form | $y - y_1 = m(x - x_1)$ |
| Standard form $f(x) = ax^{2} + bx + c$ Vertex form $f(x) = a(x - h)^{2} + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^{2} - 4ac}}{2a}$ | Slope of a line | $m = \frac{y_2 - y_1}{x_2 - x_1}$ |
| Vertex form $f(x) = a(x - h)^{2} + k$ Quadratic formula $x = \frac{-b \pm \sqrt{b^{2} - 4ac}}{2a}$ | QUADRATIC EQUATIONS | |
| Quadratic formula $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ | Standard form | $f(x) = ax^2 + bx + c$ |
| | Vertex form | $f(x) = a(x-h)^2 + k$ |
| Axis of symmetry $x = \frac{-b}{2a}$ | Quadratic formula | $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ |
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