

Algebra 2/Trig Summer Review

★ Objective Set 1: Classifying Numbers as Real, Rational, Irrational, Integer, Whole or Natural

[Khan Academy Number Sets](#)

Circle each set of numbers that each number belongs to. Circle ALL that apply.

a.) $\sqrt{25}$ Real Rational Irrational Integer Whole Natural

b.) -3.14 Real Rational Irrational Integer Whole Natural

★ Objective Set 2: Computing basic number operations (add, subtract, multiply, divide – with FRACTIONS!)

[Khan Academy Order of Operations](#)

Simplify each of the expressions below.

a.) $\frac{3}{4} - \frac{7}{9} + 2$

b.) $\frac{3}{7} \div \frac{4}{14}$

c.) $-92 + (-19) + 82$

d.) $\left(\frac{-1}{5}\right)^2$

e.) $\frac{3-9}{3+7}$

f.) $7(2) - (3+5)^2 \div 4 - 2$

★ Objective Set 3: Simplifying expressions.

[Khan Academy Distributive Property](#)

[Khan Academy Multiplying Polynomials](#)

[Khan Academy Exponent Products](#)

[Khan Academy Exponent Quotients](#)

Simplify each of the expressions below.

a.) $3(x - 4x^2) + 3x - 4(2x + 1)$

b.) $7 - 2(4ab - 3a) + 7(2b - 4ab)$

c.) $(3m - 4b)^2$

d.) $-2(3x + 4y - 8xy)$

e.) $(2x - 5)(3x^2 + 4x - 7)$

f.) $\frac{3xy^2}{21x^4yz^{-4}}$

g.) $\left(\frac{-14a^2bc^3}{2a^4b^2c}\right)\left(\frac{3a}{7c^3}\right)$

h.) $(3mx^2)^{-1}$

i.) $\left(\frac{-2x^2y^{-3}}{4x^3y^2}\right)^2$

★ **Objective Set 4: Evaluate expressions.**

[Khan Academy Evaluate Expressions](#)

Evaluate each expression below for the given values.

a.) $(2x - 3)^2 - 4x + 7$ for $x = -2$

b.) $\left(\frac{3x^2}{-y} \right) + z$ for $x = -1, y = 2, z = 5/3$

c.) $|2 - x| + 8$ for $x = 5$

★ **Objective Set 5: Solving equations and inequalities – then graphing the solution on a number line.**

[Khan Academy Solving Linear Equations](#)

[Khan Academy Solving Linear Inequalities](#)

Solve the following. Graph when indicated.

a.) $2x - 5 = 7$

b.) $\frac{9}{5} = \frac{a-1}{2}$

c.) $2(b - 4) + 8 = 3b + 7$

d.) $3|x| - 4 = 11$

e.) $3x - 4 < 7$



f.) $2(x - 4) + 3(4 - 5x) = 25 - 7(3 + 2x) + x$

g.) $\frac{1}{2}(4x - 5) + 3 \geq -6$



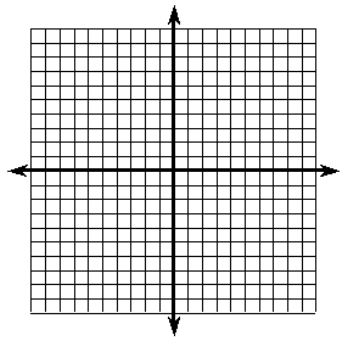
★ **Objective Set 6: Graphing equations of lines in standard form, slope-intercept form, point-slope form and horizontal/vertical form.**

[Khan Academy Graphing a Line in Slope Intercept Form](#)

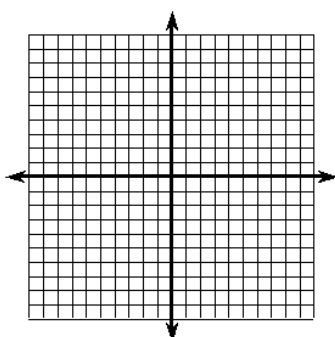
[Khan Academy Converting to Slope Intercept Form](#)

Graph each line on the grid provided.

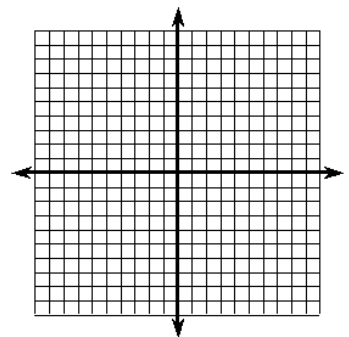
a.) $x = -2$



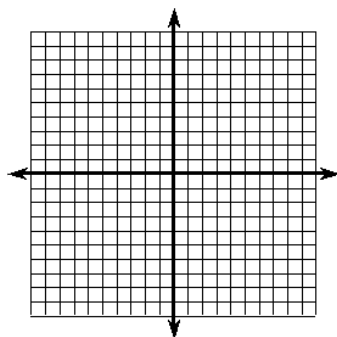
b.) $y = \frac{3}{2}x - 4$



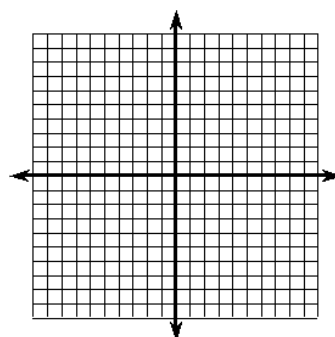
c.) $y + 7 = -2(x - 3)$



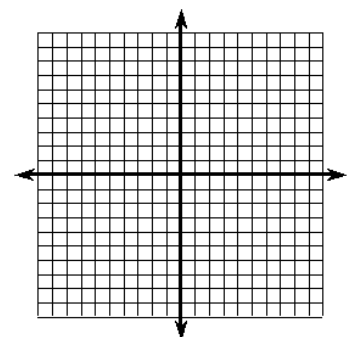
d.) $3x - 4y = 12$



e.) $3(x - 4) = 3y + 6$



f.) parallel to the x-axis
through $(2, -6)$



★ **Objective Set 7: Writing equations of lines in slope-intercept and point-slope form.**

[Khan Academy Writing Equations of Lines](#)

Write an equation of the line for the given information.

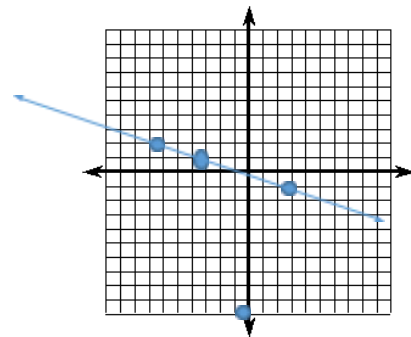
a.) goes through (2, 3) and (-4, 6)

b.) has a slope of $-\frac{3}{4}$ and y-intercept of 5

c.) that models this relationship

Time(secs)	0	1	2	3
Distance(feet)	15	25	35	45

d.)



e.) Is perpendicular to $y = \frac{3}{4}x + 5$ and goes through (-9, 6)

★ **Objective Sets 8 & 9: Recognizing whether a relation is a function and indicating its domain and range.**

[Khan Academy Recognizing a Function and its Domain and Range](#)

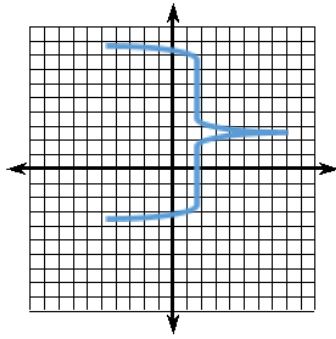
**Indicate whether or not the relation is a function.
If the relation is a function, identify the Domain and Range.**

a.)

X	-2	-2	-2	-2
F(x)	3	5	7	9

b.) (-2, 3) (3, 4) (4, 3) (5, 6)

c.)



d.) $h(x) = 2|x|$

★ **Objective Set 10: Factoring Polynomials using the Greatest Common Factor, Difference of Two Squares, Lead Coefficient of One OR a combination of two of these ☺**

[Khan Academy GCF Factoring](#)

[Khan Academy Factoring Strategies](#)

Factor each of the following completely.

a.) $3xy - 15x^2y^3$

b.) $49x^2 - 25y^2$

c.) $x^2 - 6x - 55$

d.) $a^4 + a^2 - 6$

e.) $2y^2 + 30y + 112$

f.) $a^4 - 81$

g.) $3x^2 + 75$

h.) $4a^4 - 16a^3 + 180a^2$

★ Objective Set 11: Solving Right Triangles using right triangle trigonometry.

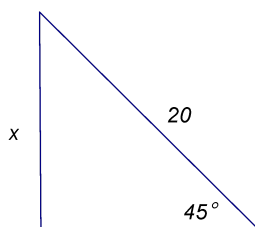
[Khan Academy 45-45-90 Triangle Ratios](#)

[Khan Academy 30-60-90 Triangle Ratios](#)

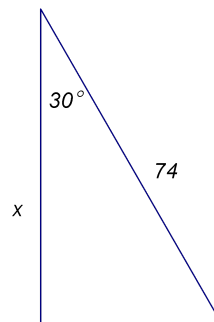
[Khan Academy Triangle Trigonometry](#)

Find the missing angle or side length using properties of right triangles.

a.)



b.)



c.)

