

# PreCalculus

## Cumulative Review 1

HSF-ID.C.8

#1) Albert hits a fastball. The table below shows the height from the ground of the baseball over time. Graph the data with a friendly window. Record it below.

Time (sec)	0	0.25	0.5	0.75	1	1.25
Distance (ft)	3	26	45	60	71	78

a. Record a friendly window.



b. What type of regression model would be most appropriate?

c. Use regression to write the equation of the model.

d. Predict the height (to 3 decimals) of the baseball at 3.0 seconds.

e. Find the times (to 3 decimals) at which the ball will be 60 feet in the air.

f. When (to 3 decimals) will the ball hit the ground?

g. What does the y-intercept represent? (Sentence answer).

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#5) If  $f(x) = 5x + 7$  and  $g(x) = x^3 + 4x^2 - 3$ , find the following:

$$f(g(0)) =$$

Answer the following questions about the given function.

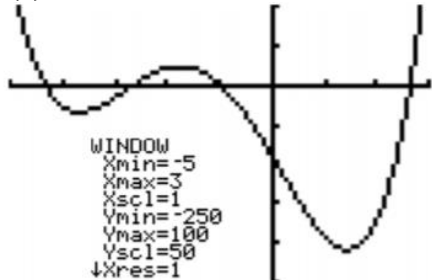
$$y = -2(3x - 12)^3 - 15$$

#7) Name Function:

#8) Translation:

#6) Use the graph of the function to determine at least one zero, then find the exact values of all the zeros using the Factor Theorem.

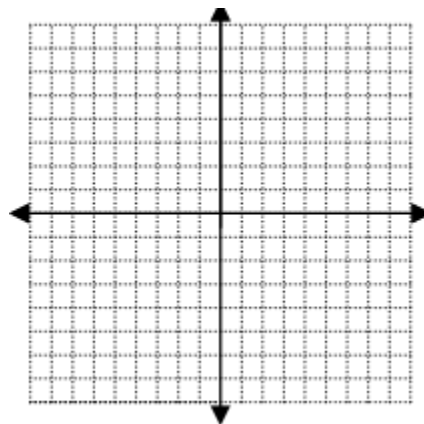
$$f(x) = 3x^4 + 16x^3 - 8x^2 - 112x - 91$$



#9) Scale:

#10) Reflection:

#11) Sketch Graph



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#12) Solve.

$$\frac{3x}{x+5} = \frac{-7}{x^2+3x-10} + \frac{1}{x-2}$$

#13) Simplify.

$$\frac{x+2}{\sqrt{x}-\sqrt{x+5}}$$

#14) Evaluate

$$\log_3 81$$

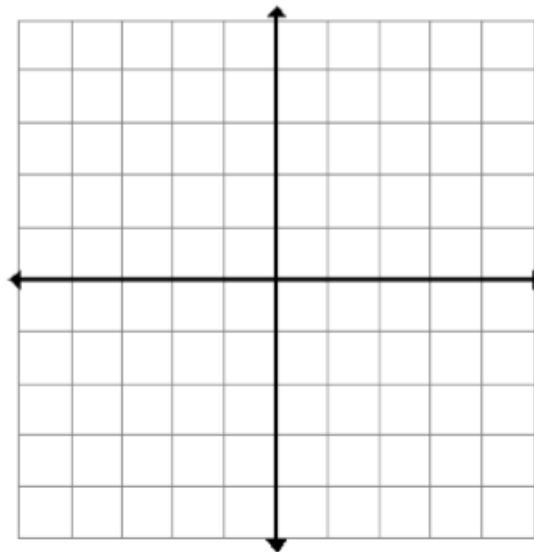
Use  $f(x) = \frac{4x}{x^3-25x}$  to answer the following questions.

#15) Vertical Asymptotes/Holes:

#16) x-intercepts:

#17) Horizontal/Slant Asymptotes:

#18) Graph it



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Use the information given to answer the questions on this page.

The formula for the path of a flying bullet is given:  
 $h = -9.8t^2 + vt + s$  where  $h$  = height of object after  $t$  seconds,  $v$  = initial velocity in meters per second and  $s$  = starting height in meters.

Bob shoots a gun straight up with an initial velocity of 200 meters per second and a starting height of 3 meters.

#19) What is the equation that represents this situation?

#20) What does the y-intercept represent to Bob?

#21) What do the x-intercepts represent to Bob?

#22) How high is the bullet after 4 seconds?

#23) How long will it take for the bullet to hit the ground after it is fired?

#24) What is the maximum height of the bullet?

#25) At what time(s) will the bullet be 500 meters in the air?