Intermediate Algebra   Name_____
Target 6.1 Retest Packet   Date_____ Period_____

Graph the following cubic functions. Answer the questions for each.

1) $f(x) = -x^3 + x^2 + 5x - 6$ 2) $f(x) = 2x^3 + 3x^2 - 4x - 3$

What is the relative minimum?   What is the relative minimum?

What is the relative maximum?   What is the relative maximum?

What are the x-intercepts?   What are the x-intercepts?

What are the y-intercepts?   What are the y-intercepts?

In what intervals does the graph increase?   In what intervals does the graph increase?

In what intervals does the graph decrease?   In what intervals does the graph decrease?

What is the domain?   What is the domain?

What is the range?   What is the range?

3) $f(x) = -x^3 + 3x^2 - 2$

What is the relative minimum?

What is the relative maximum?
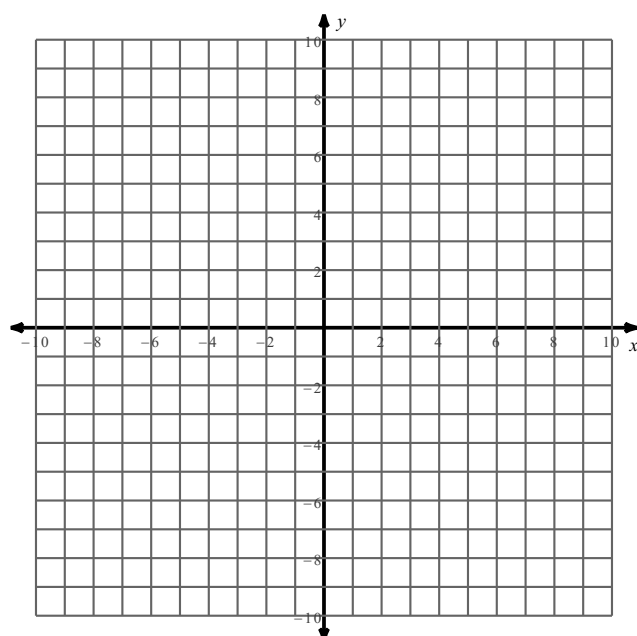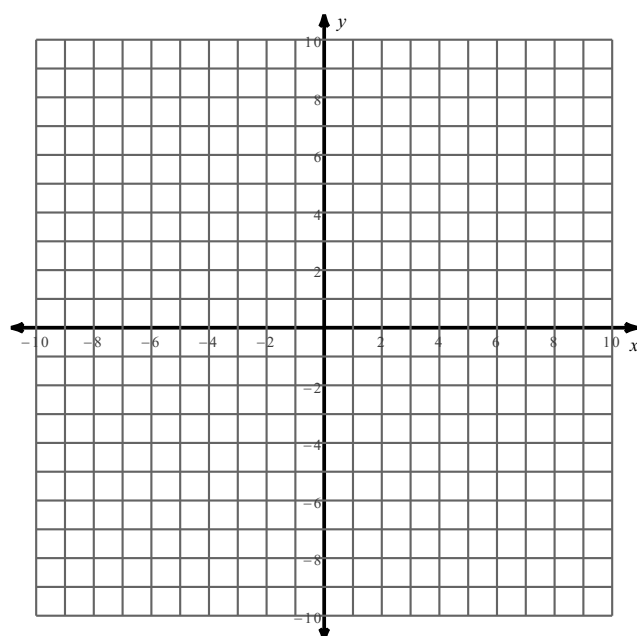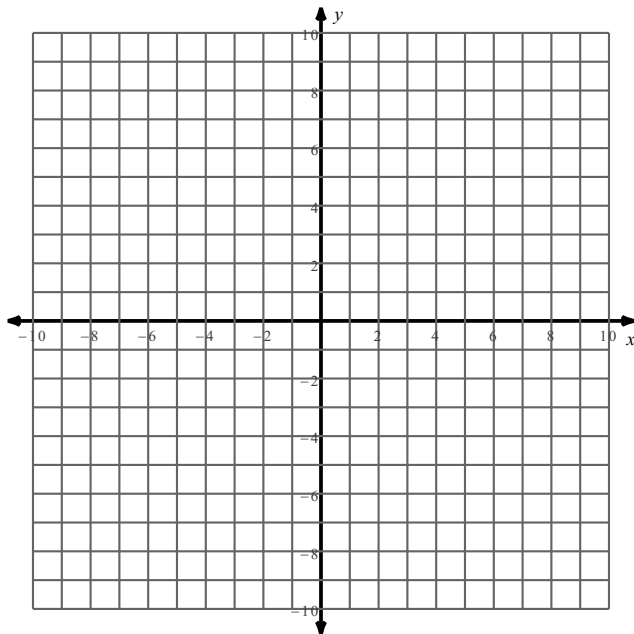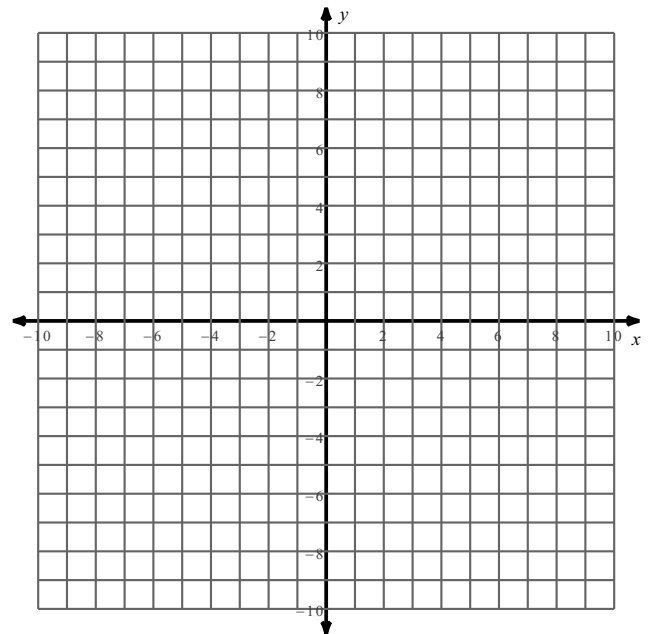
What are the x-intercepts?

What are the y-intercepts?

In what intervals does the graph increase?

In what intervals does the graph decrease?

What is the domain?

What is the range?

4) $f(x) = 5x^3 - 8x^2 + x + 1$

What is the relative minimum?

What is the relative maximum?

What are the x-intercepts?

What are the y-intercepts?

In what intervals does the graph increase?

In what intervals does the graph decrease?

What is the domain?

What is the range?

Estimate the coordinates of the relative maximum and minimum of the following graph. State the intervals of increasing and decreasing. What are the x-intercepts and y-intercepts. State the domain and range.

5) What is the relative minimum?

   What is the relative maximum?

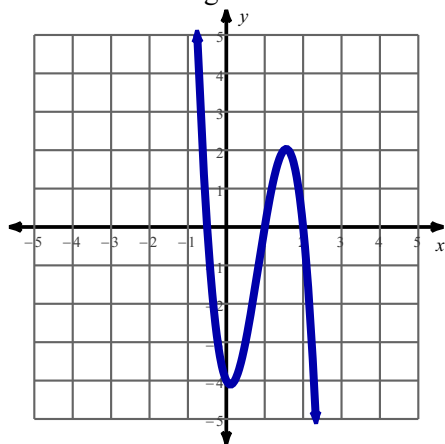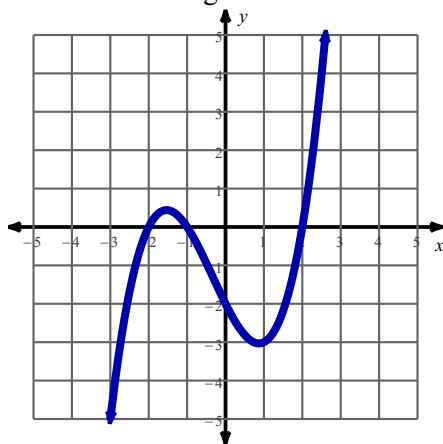   What are the x-intercepts?

   What are the y-intercepts?

   In what intervals does the graph increase?

   In what intervals does the graph decrease?

   What is the domain?

   What is the range?

6) What is the relative minimum?

   What is the relative maximum?

   What are the x-intercepts?

   What are the y-intercepts?

   In what intervals does the graph increase?

   In what intervals does the graph decrease?

   What is the domain?

   What is the range?

7) What is the relative minimum?

   What is the relative maximum?

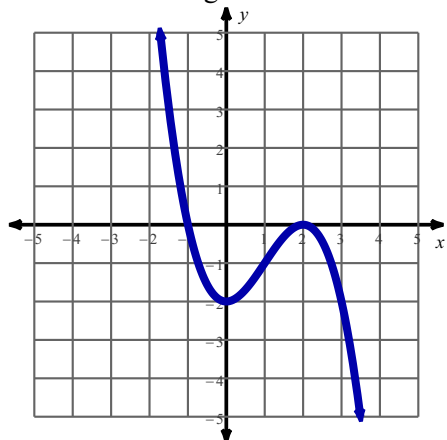   What are the x-intercepts?

   What are the y-intercepts?

   In what intervals does the graph increase?

   In what intervals does the graph decrease?

   What is the domain?

   What is the range?

8) What is the relative minimum?

   What is the relative maximum?

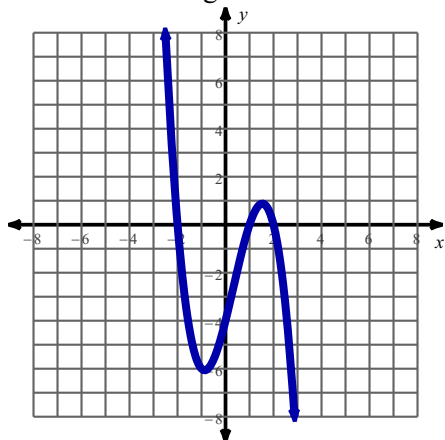   What are the x-intercepts?

   What are the y-intercepts?

   In what intervals does the graph increase?

   In what intervals does the graph decrease?

   What is the domain?

   What is the range?

9) The profit of a certain stock is given by $P(x) = -(x + 1)(x-1)(x-3)$ where P(x) is the profit and x is the number of shares of stock.

What is the is the approximate value of x(greater than zero) that gives the maximum profit?

What is the largest profit?

What are the vlaues of x that produce no profit?

Are there values of x that produce a loss of money? What are they?
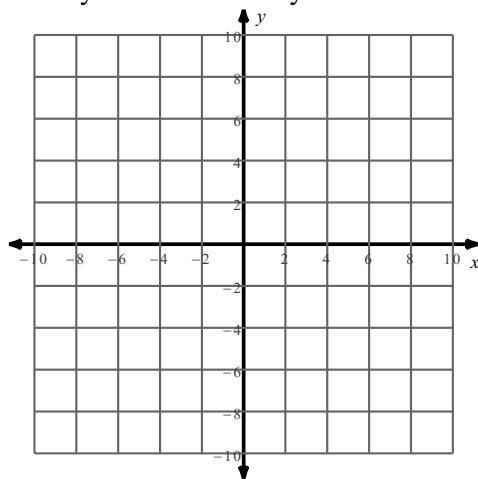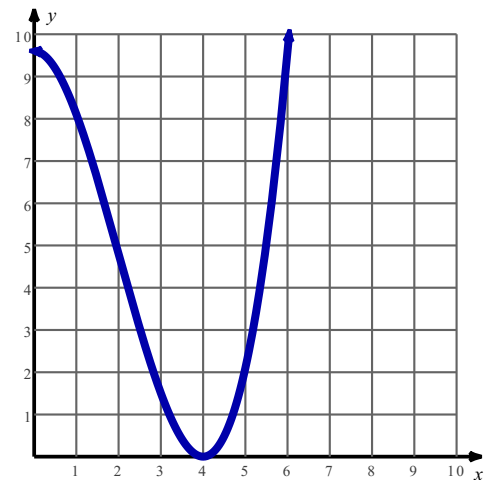

10) The distance from the target of a a rock in curling is $D(t) = (t + 1)(t - 3)(t - 3)$.

What is the distance from target at time zero?
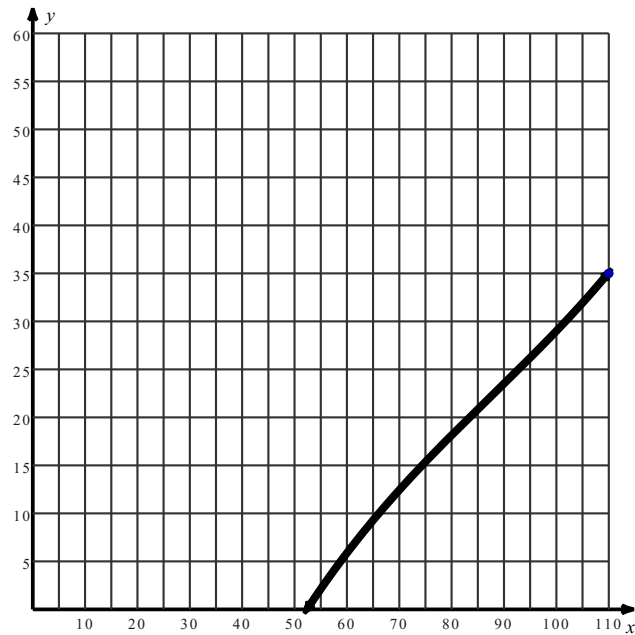
State the intervals when the rock is getting closer?

State the intervals when the rock is getting further away?

What happens when the time is 4?

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The percent of MLB pitchers who get injured after throwing a certain number of pitches can be modeled by the cubic function $I(p) = 0.00008\,p^3 - 0.021\,p^2 + 2.37\,p - 78$ which is graphed below. Answer the questions below.

11)

What are the minimums and maximums?

What is the probability that a pitcher will get hurt after throwing 95 pitches?

How many pitches do you need to throw in order to have no chance of getting hurt? State your answer as an interval.
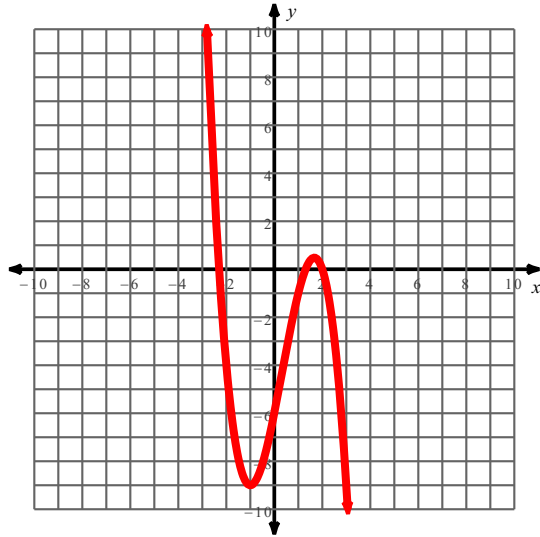

When is the probability increasing?

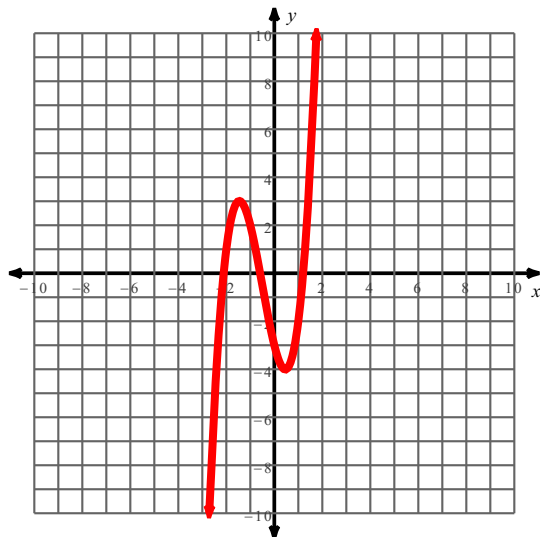
When is the probability decreasing?

When is the probability 30%?

Answers to Target 6.1 Retest Packet

1) min(-1, -9), max(1.67, .48),x-int (-2.3, 0), (1.3, 0), (2, 0), y-int(0, -6), increase:$-1 < x < 1.67$, decrease:$x < -1$ and $x > 1.67$, D = All Real Numbers, R = All Real Numbers
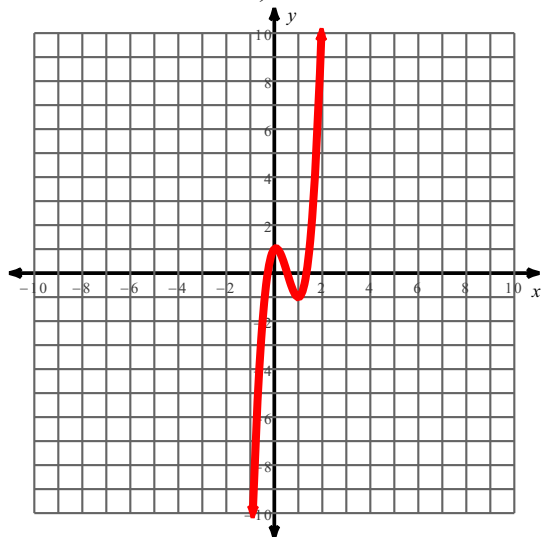

2) min:(.46,-4.01), max:(-1.46, 3.01), x-int:(-2.11, 0), (-.59, 0), (1.20, 0), y-int:(0, -3), increase: $x < -1.46$ and $x > 0.46$, decrease:$-1.46 < x < 0.46$, D = All Real Numbers, R = All Real Numbers


3) min(0,-2), max(2, 2), x-int: (-0.732, 0), (1, 0), (2.732, 0), y-int(0, -2), increase:$x < 0$ and $x > 2$, decrease:$0 < x < 2$, D = All Real Numbers, R = All Real Numbers
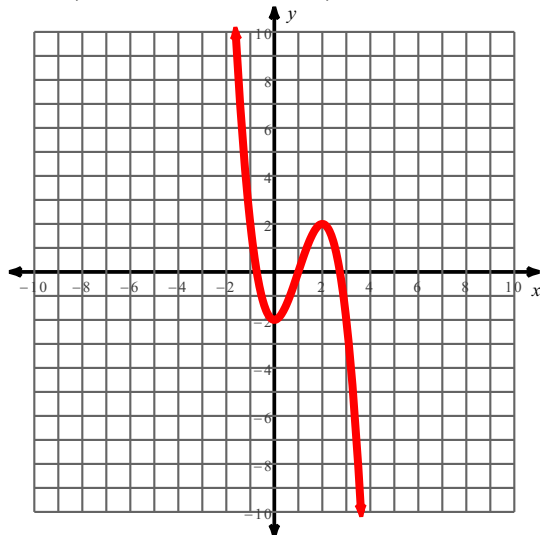
4) min:(1,-1), max:(0.067, 1.033), x-int:(-0.277, 0), (0.538, 0), (1.339, 0), y-int:(0, 1), increase:
    $x < 0.067$ and $x > 1$, decrease$0.067 < x < 1$, D = All Real Numbers, R = All Real Numbers

5) min(0,-4) max(1.5,2) decreasing x<0 and x > 1.5 increasing 0< x <1.5   x- intercepts (-.5, 0)
    (1,0) (2,0)   y-intercepts (0, -4) Domain: All Reals   Range: All Reals
6) max(-1.5,.5) min(1,--3) increasing x<-1.5 and x > 1 decreasing -1.5< x <1   x- intercepts
    (-2,0) (-1, 0) (2,0)   y- intercepts (0, -2) Domain: All Reals   Range: All Reals
7) max(2 , 0) min(0 , -2) increasing 0<x<2 decreasing x < 0 and x > 2   x- intercepts (-1,0)
    (-1, 0) (2,0)   y- intercepts (0, -2) Domain: All Reals   Range: All Reals
8) max(1.5 , 1) min(-1 , -6) increasing -1<x<1.5 decreasing x < -1 and x > 1.5   x- intercepts
    (-2,0) (1, 0) (2,0)   y- intercepts (0, -4) Domain: All Reals   Range: All Reals
9) max profit $x = 2$, the largest profit is 3, no profit at $x = 1$ and $x = 3$, loss $0 < x < 1$ and $x > 3$.
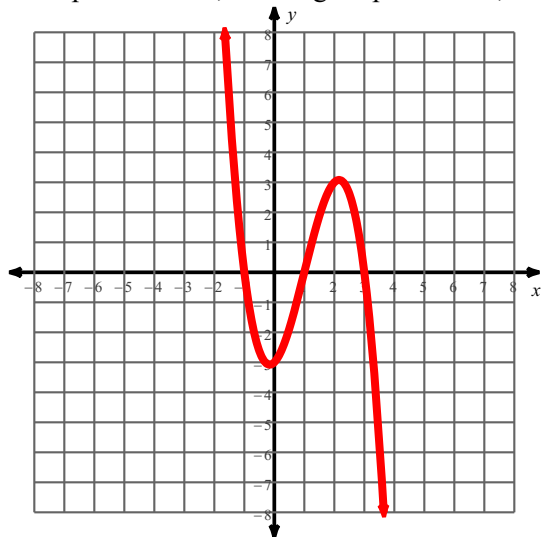
10) distance to target at time zero is 9, getting closer $0 < x < 4$, getting further away $x > 4$ at time 4
    the rock is at the target.
11) There are no minimums or maximums. 26.22%, $p \leq 52$, Increasing: All Real Numbers,
    Decreasing: Never, About 101 pitches