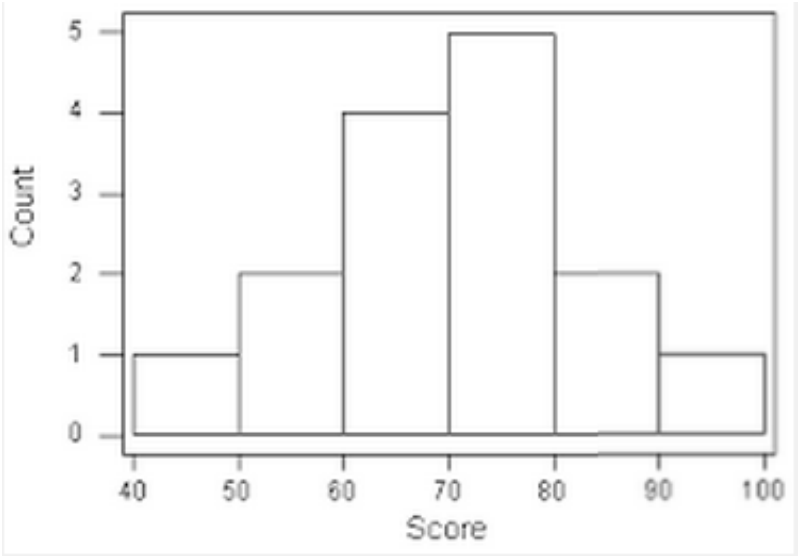
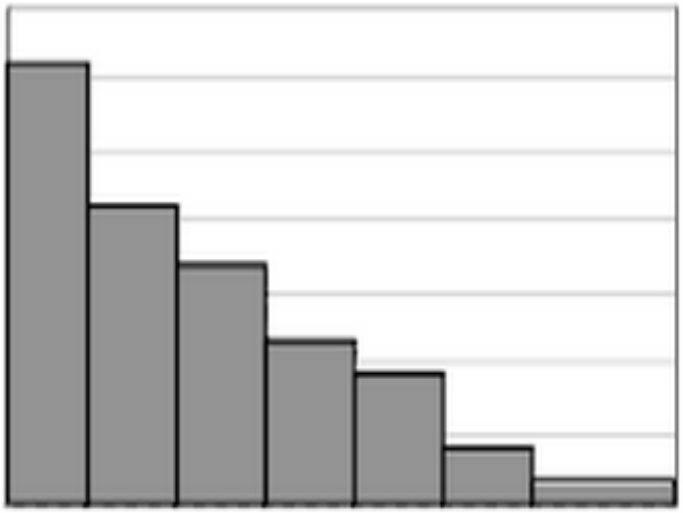
MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

1)	Calculate the future value of $1000 invested for 3 years at 6% per annum, compounded quarterly. Recall: $FV = PV(1 + i)^n$, where PV is the present value (or principal), i is the annual interest rate, and n is the number of compounding periods.	For a 6% annual interest rate, what rate of interest would you pay every quarter (i.e., compounded quarterly)? If you have invested some money for 3 years, where the interest is compounded quarterly, how many compounding periods will there be?

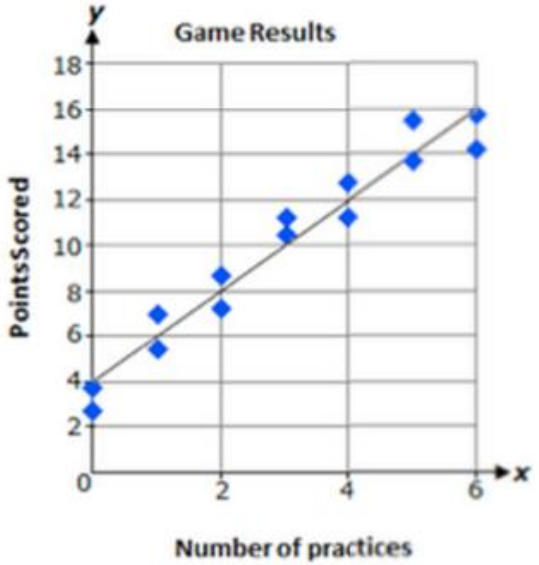
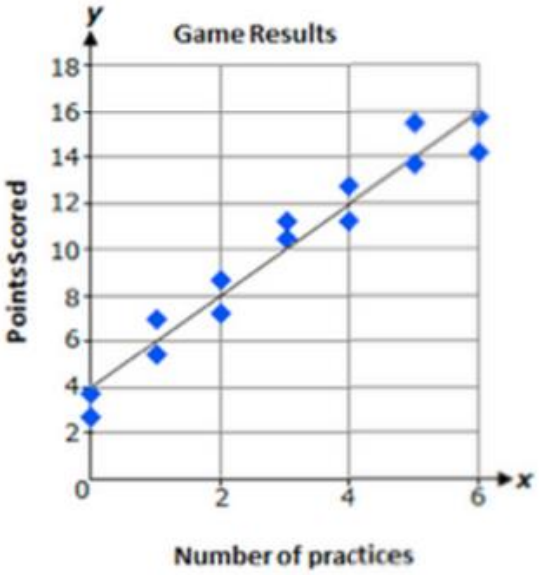
Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

2)	 In this histogram, in what interval would you expect to find… i) the mean? ii) the median? iii) the mode? Why?	 i) In this *skewed* histogram, in what interval would you expect to find the… a) mean? b) median? c) mode? Why? ii) Provide an example of what this graphical display could be showing.

Math Concept (Name?)	Solution (Solve it!)
	(chart continues on next page)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

3)	 According to the graph… i) if *any* person doesn't practice at all, how many points would you expect them to score? ii) if *any* person practices three times, how many points would you expect them to score?	 At the rate of points being scored per game, how many points would you expect a person to score if they've practiced… i) 7 times? ii) 12 times? iii) 99 times? (#3 continues on next page)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

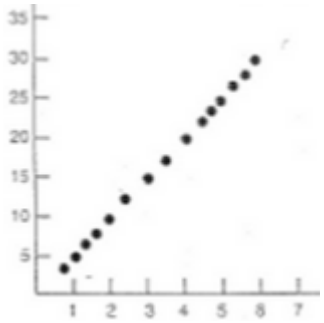
4)	To book a private room at a restaurant, it costs \$60. For each guest, it costs \$10. If you have a \$200 budget, how many guests can you invite?	Solve each equation. a) $200 = 10n + 60$ b) $x + x + 7 + x + 8 = 27$ c) $b^2 = 36$ d) $3 + 2x = 4x - 3$

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

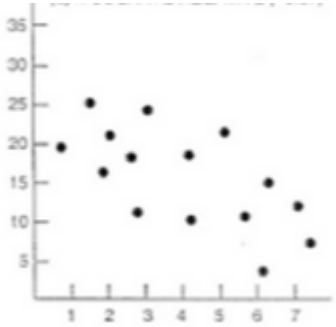
MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

5)

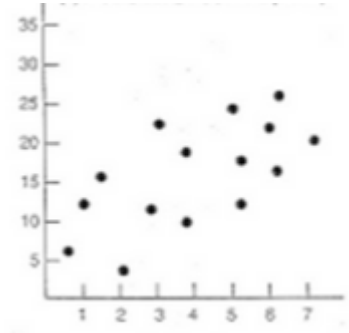
a)



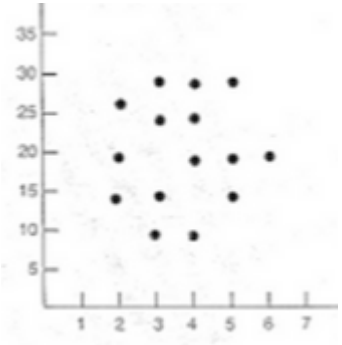
b)



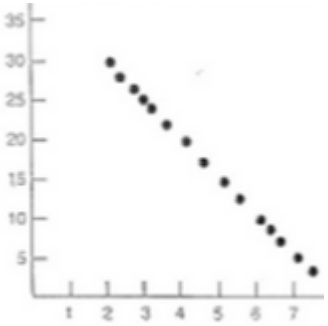
c)



d)



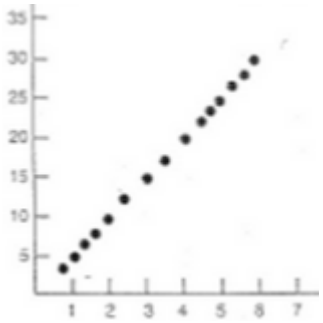
e)



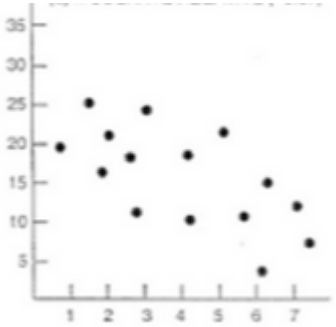
How would you describe each of the graphs in terms of…

i) the strength of correlation?
ii) the trend in the correlation?

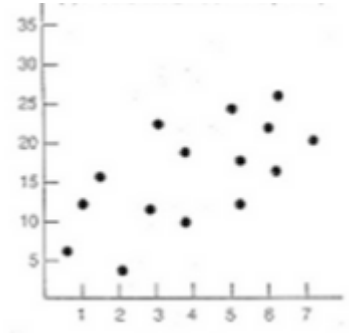
a)



b)



c)



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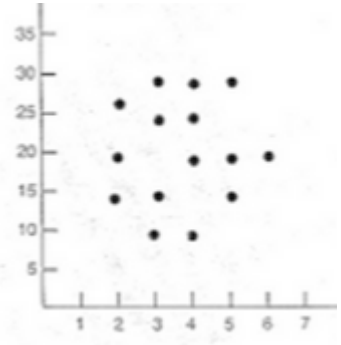
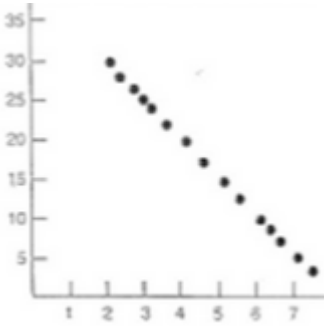


e)



Add a *line of best fit* to each of the graphs.

(#5 continues on the next page)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

6)	You fold a piece of paper in half, and then pass the folded sheet along to someone else in the class. They take the folded sheet and fold it in half, and then pass it along to someone else in the class. This process is repeated for the number of students in the class. Write a *power* that represents the number of rectangles you'd expect to see if you unfolded the piece of paper following the class' participation. How many small rectangles are there?	NAME: i) Evaluate the following power of 2: 2^{16} ii) Simplify the following expression to a single power of 2. As it stands right now, there are three powers of 2 in the expression. Your answer is to have only one. $\frac{2^3 \times 2^4}{2^7}$

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

7)	Last year, Mr. Stewart planted $\frac{1}{2}$ of his garden with potatoes. This year, only $\frac{2}{3}$ of last year's half was used for growing potatoes. This year, what fraction of Mr. Stewart's garden was used for growing potatoes?	Evaluate: a) $\frac{1}{2} \times \frac{1}{3}$ b) $\frac{1}{2} \times \frac{2}{3}$ c) $\frac{3}{2} \times \frac{2}{3}$

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

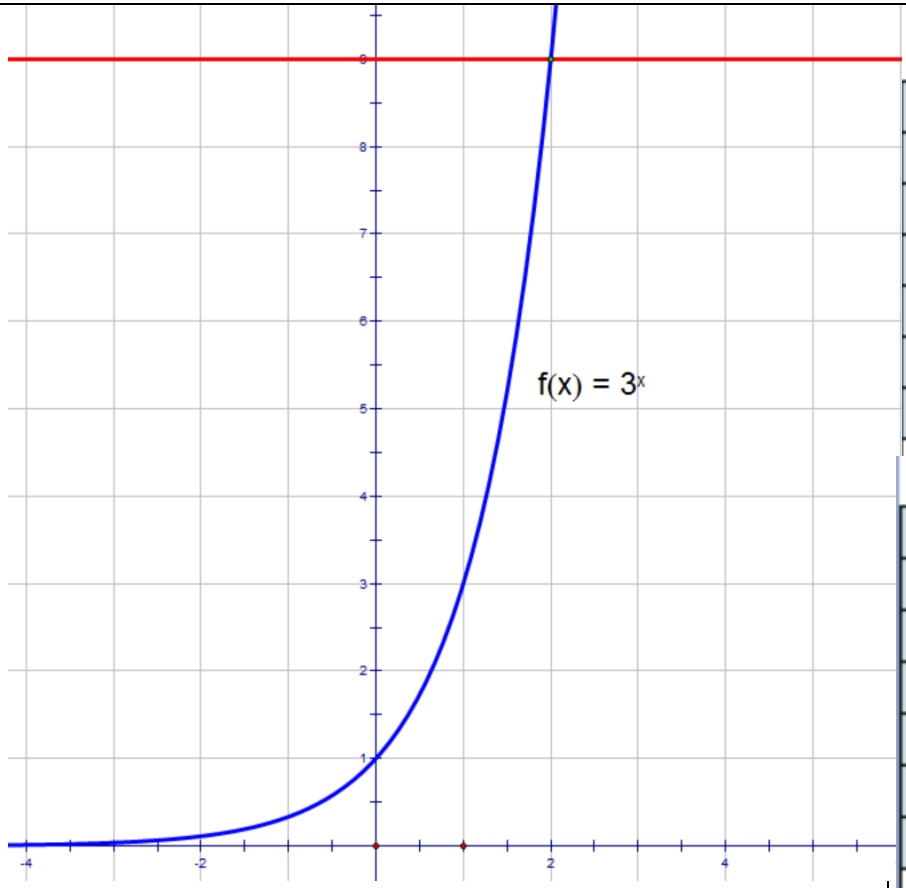
MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

8)	A car travels 78 km in 45 minutes. At this speed, how far would it travel in one hour?	Solve each proportion. a) $\frac{75}{45} = \frac{d}{60}$ b) $\frac{75}{0.75} = \frac{d}{1}$

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

(#9 on next page)

9)



y=3^x

	x	y
1	-2	1/9
2	-1	1/3
3	0	1
4	1	3
5	2	9
6	3	27

y=9

	x	y
1	-2	9
2	-1	9
3	0	9
4	1	9
5	2	9
6	3	9

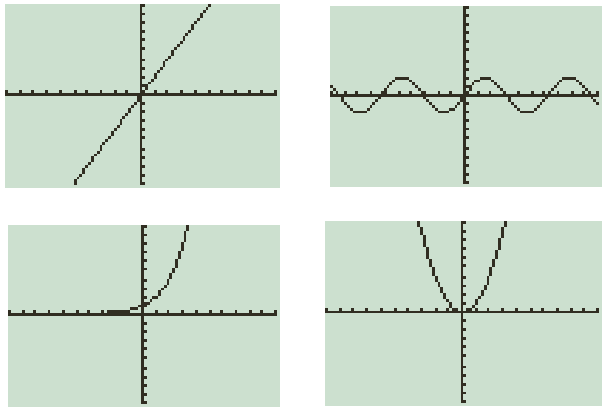
On the graph, where does $3^x = 9$? In other words, for what value of *x* does $3^x = 9$?

What is the solution to this system of equations (i.e., the point of intersection)?

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

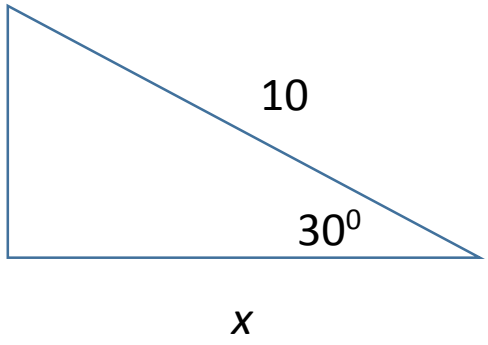
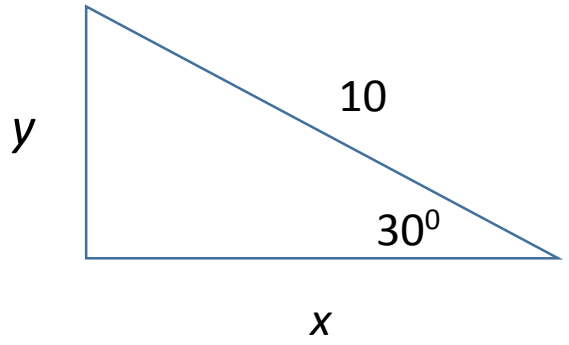
10)	Classify the following graphs as *linear*, *quadratic*, *exponential*, or *other*. 	Classify the following equations as *linear*, *quadratic*, *exponential*, or *other*. $y = 2x$ $y = 2sinx$ $y = 2^x$ $y = x^2$

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

11)	If 1 yard = 3 feet, then… i) 1 yard^2 = ? ii) 1 yard^3 = ?	Convert each measurement into feet and inches. a) 12 inches b) 18 inches c) 98 inches

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

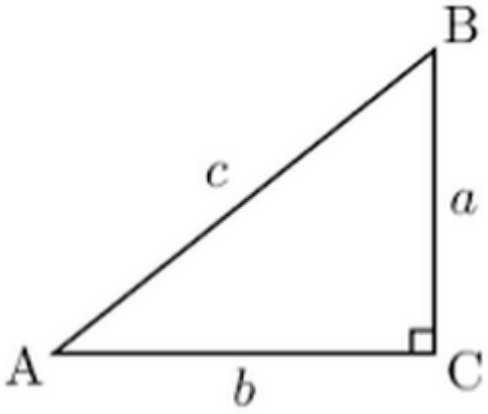
MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

12)	Which of the following equations would you use to solve for the indicated side length?  a) $sin30^0 = \frac{x}{10}$ b) $cos30^0 = \frac{x}{10}$ c) $tan30^0 = \frac{x}{10}$	Label each side of the right triangle with one of the following terms: *opposite*, *adjacent*, *hypotenuse*. 

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

13)

Which formulas would you most likely use when working with triangles of this type?



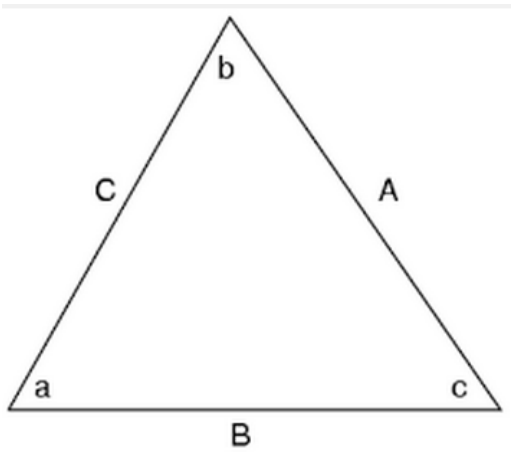
i) $C^2 = A^2 + B^2 - (2AB)(\cos c)$

ii) $C^2 = A^2 + B^2$

iii) $\sin A = \frac{opp}{hyp}$ $\cos A = \frac{adj}{hyp}$ $\tan A = \frac{opp}{adj}$

iv) $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

Which formulas would you most likely use when working with triangles of this type?



i) $C^2 = A^2 + B^2 - (2AB)(\cos c)$

ii) $C^2 = A^2 + B^2$

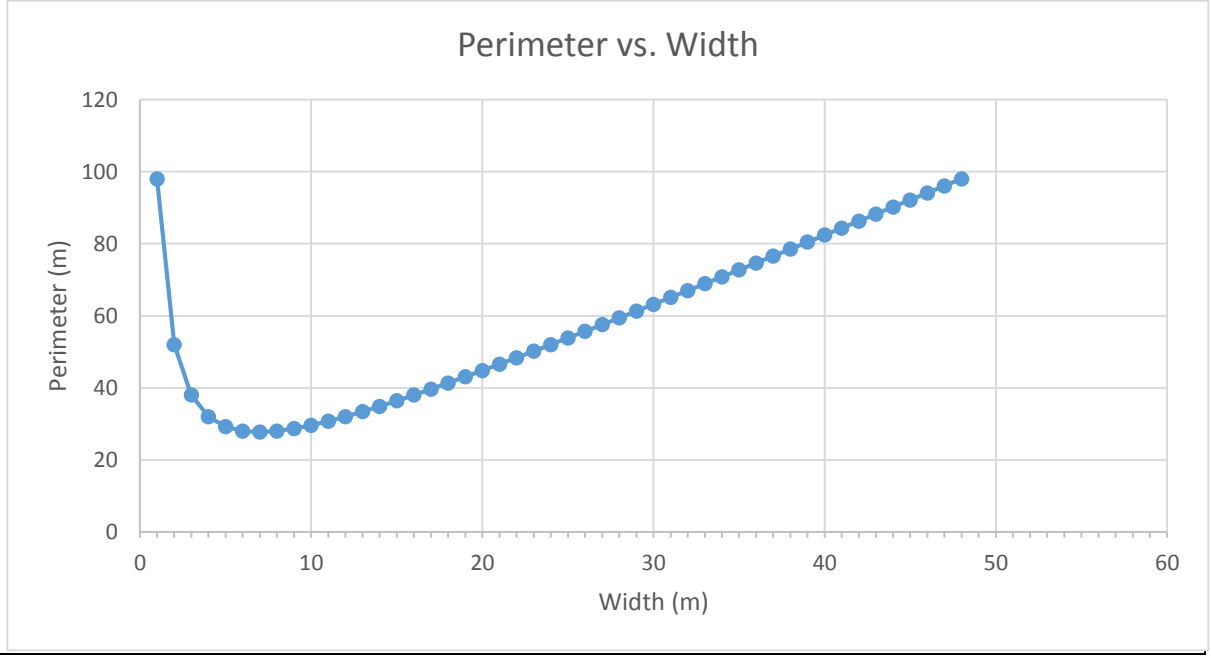
iii) $\sin A = \frac{opp}{hyp}$ $\cos A = \frac{adj}{hyp}$ $\tan A = \frac{opp}{adj}$

iv) $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$

(#12 continues on next page)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

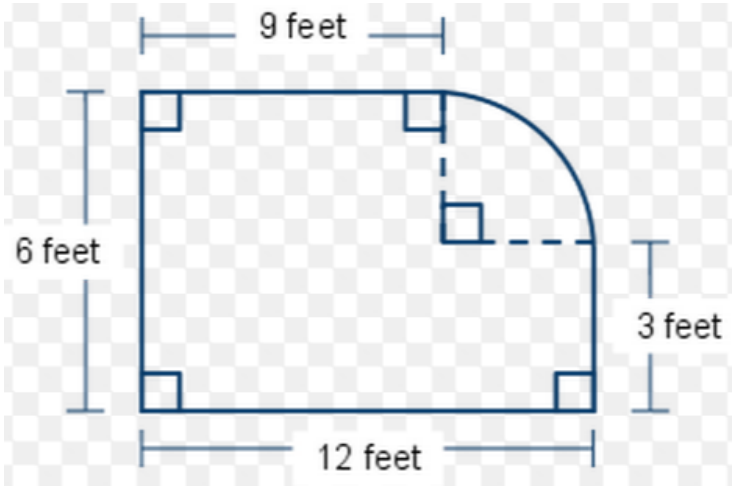
14)	i) Sketch three rectangles—each one having a different perimeter—that each have an area of 48 m^2. ii) Which one has the minimum perimeter? iii) Make a prediction as to what set of dimensions (length, width) will produce the smallest perimeter.	The graph below shows the perimeter of a rectangle, with area 48 m^2, plotted against its changing width. i) What width produces the *minimum* perimeter? ii) For this width, calculate the length of the rectangle. iii) What do you notice about these dimensions? 

Math Concept (Name?)	Solution (Solve it!)

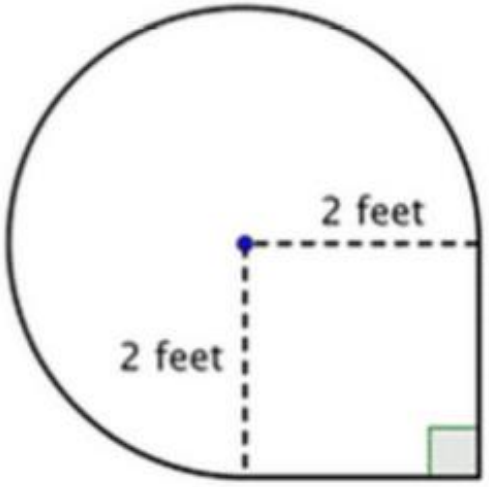
MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

15)



Describe how you might go about calculating the area of this shape.



Describe how you might go about calculating the area of this shape.

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____

Math Concept (Name?)	Solution (Solve it!)
Details (What's important about *how* you solved the problem? What might be helpful for others to remember?)	Example (Provide another example and solve it)

MAP 4C **Diagnostic: *Are You Ready for This?*** Name: _____ Date: _____