

Math 110 Attitude and Perception Survey - 2010-09

This is a survey of your attitudes and perceptions about math. The completion of this survey will count towards your participation, but your individual responses will not affect your grade in any way and will not be accessible by the instructors.

This survey consists of two parts:

1. A survey of your attitudes and perceptions about math; these questions all have the response choices Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree, and should take less than 10 minutes. Please choose the response that matches your opinion, not what you think an instructor might say or want to hear.

2. A few conceptual questions in math that you may have encountered before and will encounter in this course. These questions will be given in multiple choice format.

Please take this survey seriously as your responses will be used for the research about course improvement. If you have questions about the survey, please email Joseph Lo at qwlo@math.ubc.ca. This survey is part of the project with Math 110 supported by the Carl Wieman Science Education Initiative.

1) What is your UBC student number? (We ask for your student number to track completion and for research purpose, so that your responses later in the term can be matched to those here. Your individual results will not be accessible to the instructors and will not affect your grades.)

2) An obstacle to learning math is having to memorize all the necessary information.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

3) When I am solving a math problem, I try to predict what would be a reasonable answer.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

4) It is useful for me to do lots and lots of problems when learning math.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

5) After I study a topic in math and feel that I understand it, I have difficulty solving problems on the same topic.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

6) Knowledge in math consists of many disconnected topics.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

7) When I solve a math problem, I find an example that looks like the problem given and follow the same steps.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

8) I find that reading the text in detail is a helpful way for me to learn math.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

9) There is usually only one correct approach to solving a math problem.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

10) I'm satisfied if I can do the exercises for a math topic, even if I don't understand how everything works.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

11) I cannot learn math if the teacher does not explain things well in class.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

12) I do not expect math formulas to help my understanding of the ideas; they are just for doing calculations.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

13) I study math to learn things that will be useful in my life outside of school.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

14) If I get stuck on a math problem on my first try, I usually try to figure out a different way that works.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

15) Nearly everyone is capable of understanding math if they work at it.

- Strongly Agree

- Agree
- Neutral
- Disagree
- Strongly Disagree

16) Understanding math means being able to recall something you've read or been shown.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

17) To understand math I talk about it with friends and other students.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

18) If I am stuck on a math problem for more than five minutes, I give up or get help from someone else.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

19) If I don't remember a particular formula needed to solve a problem on a math exam, there's nothing much I can do to come up with it.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

20) In doing a math problem, if my calculation gives a result very different from what I'd expect, I'd trust the calculation rather than going back through the problem.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

21) In math, it is important for me to make sense out of formulas and procedures before I can use them correctly.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

22) I enjoy solving math problems.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

23) Mathematical formulas express meaningful relationships among measurable things or amounts.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

24) Learning math changes my ideas about how the world works.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

25) To learn math, I only need to memorize solutions to sample problems.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

26) Reasoning skills used to understand math can be helpful to me in my everyday life.

- Strongly Agree

- Agree
- Neutral
- Disagree
- Strongly Disagree

27) Please select "Strongly Disagree" for this question. We use this statement to discard the survey of people who are not reading the questions.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

28) It is a waste of time to understand where math formulas come from.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

29) I find carefully analyzing only a few problems in detail is a good way for me to learn math.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

30) I can usually figure out a way to solve math problems.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

31) School mathematics has little to do with what I experience in the real world.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

32) There are times I solve a math problem more than one way to help my

understanding.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

33) Being good at math requires talent.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

34) It is possible to explain mathematical ideas without using equations.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

35) To understand math, I sometimes relate my personal experiences to the topic being studied.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

36) When I am solving a math problem, if I can see a formula that applies I don't worry about the underlying concepts.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

37) If I get stuck on a math problem, there is no chance that I will figure it out on my own.

- Strongly Agree
- Agree

- Neutral
- Disagree
- Strongly Disagree

38) When learning something new in math, I relate it to what I already know rather than just memorizing it the way it is presented.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

39) I avoid solving math problems when possible.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

40) To prepare for a math test, I only need to memorize solutions to examples.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

41) I think it is unfair to expect me to solve a math problem that is not similar to any example given in class or the textbook, even if the topic has been covered in the course.

- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

42) Choose all the following statements about asymptotes of a curve on a graph that you agree. (Check all that apply.)

- a) An asymptote is a line that the curve may not cross or touch.
- b) An asymptote is used mainly as an outline when sketching the curve.
- c) An asymptote is a line that some part of the curve will get closer and closer to when it is farther and farther away from the origin.
- d) An asymptote is a line that emphasizes any straight section that is shown on the curve.

- e) An asymptote is a line that shows where a function is undefined.
- f) An asymptote is a line that gives some information on the shape of the curve outside the sketch.
- g) I don't agree with any of the above statements. (Please comment on why you don't agree.)

Additional comments

43) Choose all the following statements about tangent lines to a curve that you agree. (Check all that apply.)

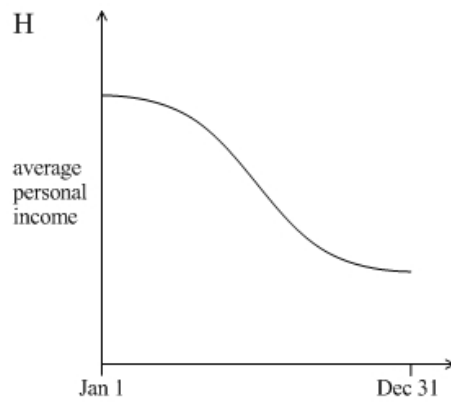
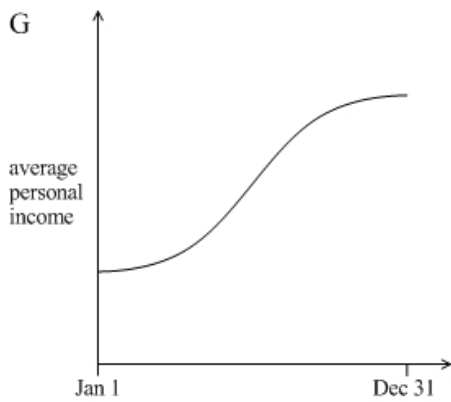
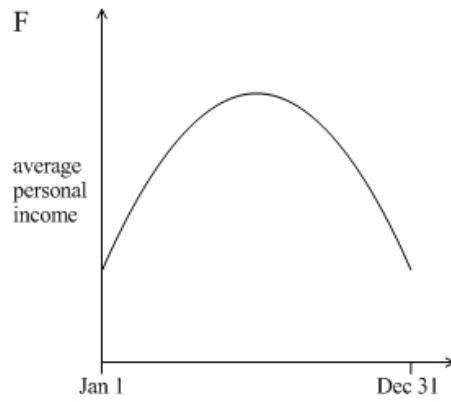
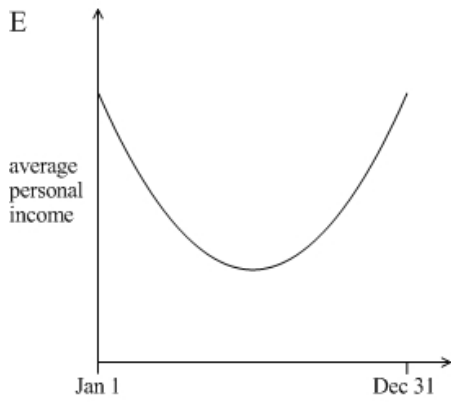
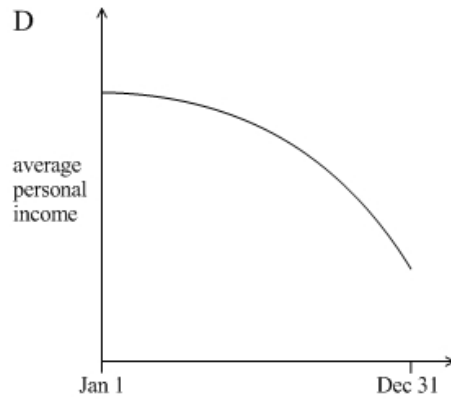
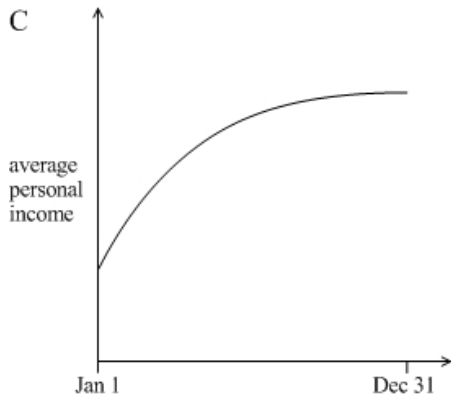
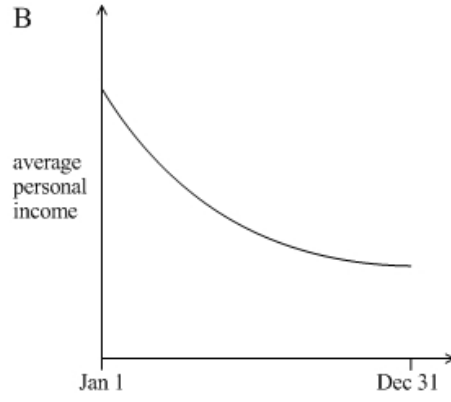
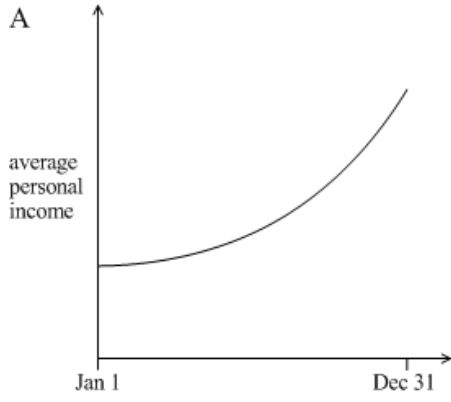
- a) A tangent line to a curve must intersect with the curve.
- b) A tangent line to a curve touches the curve at not more than one point.
- c) A tangent line to a curve must not cross the curve at the point of tangency.
- d) A tangent line to a curve looks like the curve itself when zoomed in to the point of tangency.
- e) A tangent line exists at any point on the curve as long as the curve is continuous at that point.
- f) I don't agree with any of the above statements. (Please comment on why you don't agree.)

Additional comments

44) Suppose you know the distance by road between two towns and how long it has taken someone to travel between them by car. Can you determine if the car has exceeded a speed limit?

- a) Yes.
- b) Not always. You can only be sure if the time taken is short enough.
- c) You cannot conclude anything using just this information. You need to measure the speed of the car along the way to see if it is speeding at some point.

45) In a live TV show, a politician stated that *the growth rate of the average personal income* has been increasing throughout the previous year. Which of the follow graphs support(s) the politician's statement? (Check all that apply.)



- a) A
- b) B
- c) C
- d) D
- e) E
- f) F
- g) G
- h) H

i) None of the above graphs seems to agree with the politician's statement. (Please comment on why you think so.)

Additional comments

46) Is there anything else you want to say about the survey, your attitude towards math/your courses, your comments on the course/lectures/homework/workshops/instructor/TAs, etc?

Thank you for your responses!

The next survey will be given in October, around the time you have your first midterm.

#		Mean	SD
2	An obstacle to learning math is having to memorize all the necessary information.	3.30	1.01
3	When I am solving a math problem, I try to predict what would be a reasonable answer.	3.62	0.92
4	It is useful for me to do lots and lots of problems when learning math.	4.18	0.87
5	After I study a topic in math and feel that I understand it, I have difficulty solving problems on the same topic.	3.39	1.10
6	Knowledge in math consists of many disconnected topics.	2.90	1.04
7	When I solve a math problem, I find an example that looks like the problem given and follow the same steps.	4.12	0.71
8	I find that reading the text in detail is a helpful way for me to learn math.	3.11	1.10
9	There is usually only one correct approach to solving a math problem.	2.22	0.84
10	I'm satisfied if I can do the exercises for a math topic, even if I don't understand how everything works.	2.77	1.19
11	I cannot learn math if the teacher does not explain things well in class.	4.27	0.95
12	I do not expect math formulas to help my understanding of the ideas; they are just for doing calculations.	2.90	1.13
13	I study math to learn things that will be useful in my life outside of school.	2.88	1.06
14	If I get stuck on a math problem on my first try, I usually try to figure out a different way that works.	3.67	0.82
15	Nearly everyone is capable of understanding math if they work at it.	3.70	0.98
16	Understanding math means being able to recall something you've read or been shown.	3.24	0.97
17	To understand math I talk about it with friends and other students.	3.46	1.04
18	If I am stuck on a math problem for more than five minutes, I give up or get help from someone else.	3.11	1.12
19	If I don't remember a particular formula needed to solve a problem on a math exam, there's nothing much I can do to come up with it.	3.14	1.03
20	In doing a math problem, if my calculation gives a result very different from what I'd expect, I'd trust the calculation rather than going back through the problem.	2.23	0.87
21	In math, it is important for me to make sense out of formulas and procedures before I can use them correctly.	3.69	0.98
22	I enjoy solving math problems.	2.89	1.17
23	Mathematical formulas express meaningful relationships among measurable things or amounts.	3.54	0.74
24	Learning math changes my ideas about how the world works.	2.81	1.00
25	To learn math, I only need to memorize solutions to sample problems.	2.05	0.98
26	Reasoning skills used to understand math can be helpful to me in my everyday life.	3.51	0.95
28	It is a waste of time to understand where math formulas come from.	2.54	0.99
29	I find carefully analyzing only a few problems in detail is a good way for me to learn math.	2.92	0.93
30	I can usually figure out a way to solve math problems.	2.98	1.01
31	School mathematics has little to do with what I experience in the real world.	3.33	1.07

32	There are times I solve a math problem more than one way to help my understanding.	3.05	0.97
33	Being good at math requires talent.	3.55	1.02
34	It is possible to explain mathematical ideas without using equations.	3.42	0.85
35	To understand math, I sometimes relate my personal experiences to the topic being studied.	2.38	1.01
36	When I am solving a math problem, if I can see a formula that applies I don't worry about the underlying concepts.	3.28	0.97
37	If I get stuck on a math problem, there is no chance that I will figure it out on my own.	2.72	1.04
38	When learning something new in math, I relate it to what I already know rather than just memorizing it the way it is presented.	3.48	0.87
39	I avoid solving math problems when possible.	3.09	1.11
40	To prepare for a math test, I only need to memorize solutions to examples.	1.90	0.87
41	I think it is unfair to expect me to solve a math problem that is not similar to any example given in class or the textbook, even if the topic has been covered in the course.	3.62	1.19
42	Choose all the following statements about asymptotes of a curve on a graph that you agree. (Check all that apply.) :	Yes	No
	An asymptote is a line that the curve may not cross or touch.	0.84	0.16
	An asymptote is used mainly as an outline when sketching the curve.	0.18	0.82
	An asymptote is a line that some part of the curve will get closer and closer to when it is farther and farther away from the origin.	0.54	0.46
	An asymptote is a line that emphasizes any straight section that is shown on the curve.	0.05	0.95
	An asymptote is a line that shows where a function is undefined.	0.56	0.44
	An asymptote is a line that gives some information on the shape of the curve outside the sketch.	0.25	0.75
43	Choose all the following statements about tangent lines to a curve that you agree. (Check all that apply.) :	Yes	No
	A tangent line to a curve must intersect with the curve.	0.38	0.62
	A tangent line to a curve touches the curve at not more than one point.	0.65	0.35
	A tangent line to a curve must not cross the curve at the point of tangency.	0.25	0.75
	A tangent line to a curve looks like the curve itself when zoomed in to the point of tangency.	0.18	0.82
	A tangent line exists at any point on the curve as long as the curve is continuous at that point.	0.44	0.56
44	Suppose you know the distance by road between two towns and how long it has taken someone to travel between them by car. Can you determine if the car has exceeded a speed limit?		
	Yes.	0.52	
	Not always. You can only be sure if the time taken is short enough.	0.18	
	You cannot conclude anything using just this information. You need to measure the speed of the car along the way to see if it is speeding at some	0.31	

	point.		
45	In a live TV show, a politician stated that the growth rate of the average personal income has been increasing throughout the previous year. Which of the follow graphs support(s) the politician's statement? (Check all that apply.) :		
	A	0.84	0.16
	B	0.03	0.97
	C	0.50	0.50
	D	0.02	0.98
	E	0.05	0.95
	F	0.02	0.98
	G	0.59	0.41
	H	0.02	0.98