Math 1050 Section 3

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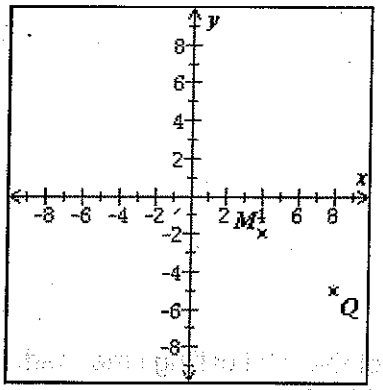
Chapter 2 Exam Form B

DO NOT WRITE ON THIS EXAM!

Directions: Put your name on each piece of scratch paper that you use. Turn in your scratch paper along with your answer sheet when you finish the exam. Do each problem in order on your scratch paper showing all the steps of your solution. Put your final answer neatly on the answer sheet. Remember to check your answers to insure a good score. Good luck, your preparation will pay off!

1. Calculate the distance between the points $Q = (8, -5)$ and $M = (4, -2)$ in the Cartesian plane.

Write the exact answer in radical form.



2. The function g is defined by $g(x) = \dfrac{2x+7}{x+1}$.

Find $g(x+3)$.

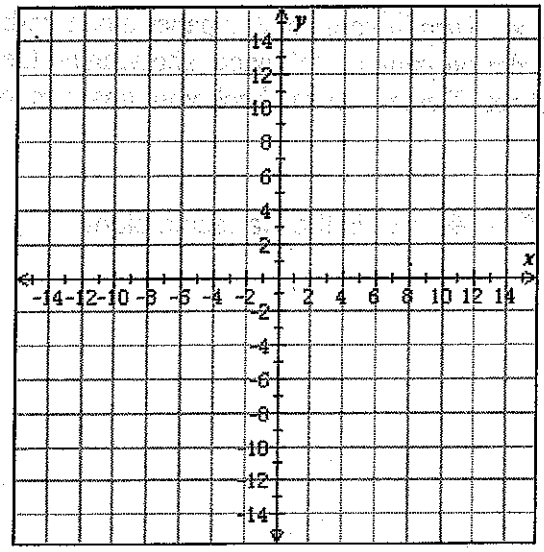
3. Write equations for the vertical and horizontal lines passing through the point $(8, -6)$.

vertical line:

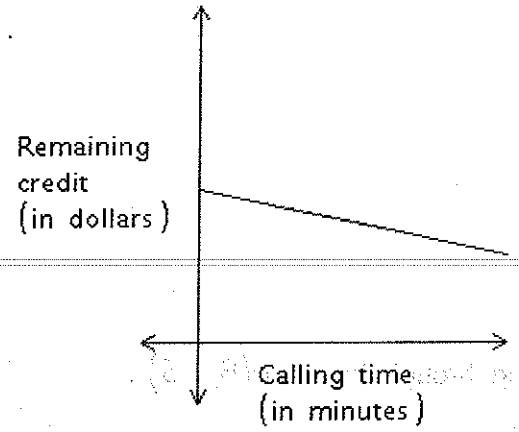
horizontal line:

4. Graph

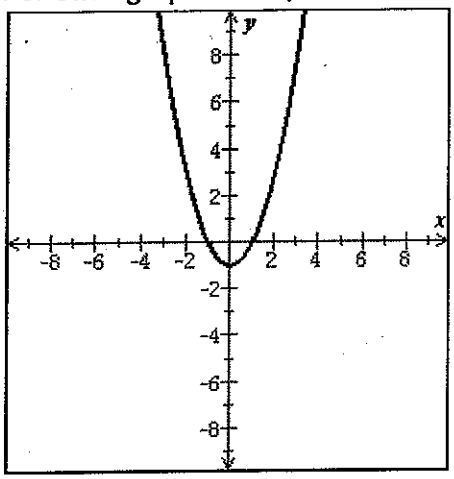
$$y = -\frac{3}{4}x^3 .$$



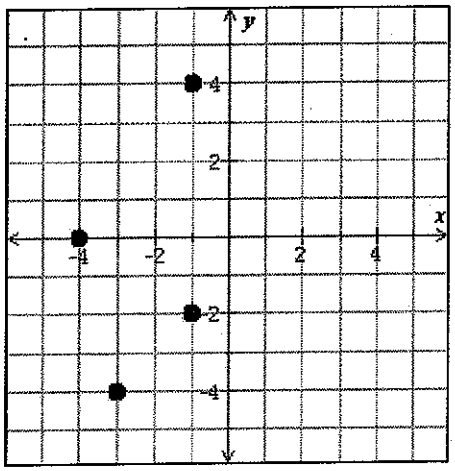
5. The credit remaining on a phone card (in dollars) is a linear function of the total calling time made with the card (in minutes). The remaining credit after 41 minutes of calls is $\$23.85$, and the remaining credit after 62 minutes of calls is $\$20.70$. What is the remaining credit after 70 minutes of calls?



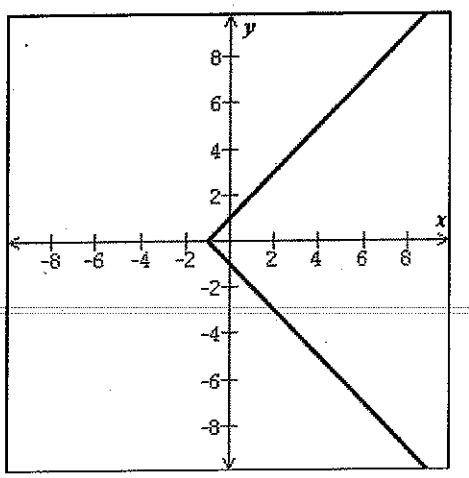
6. For each graph below, state whether it represents a function.



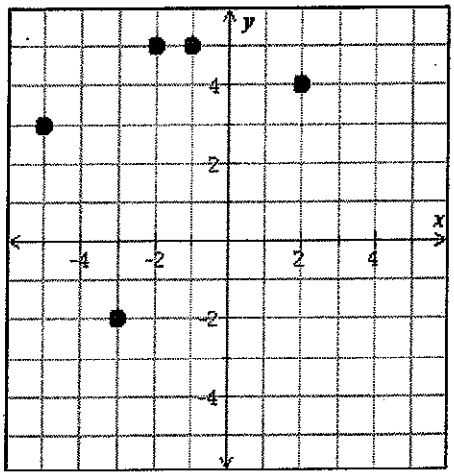
Function?:
Yes No



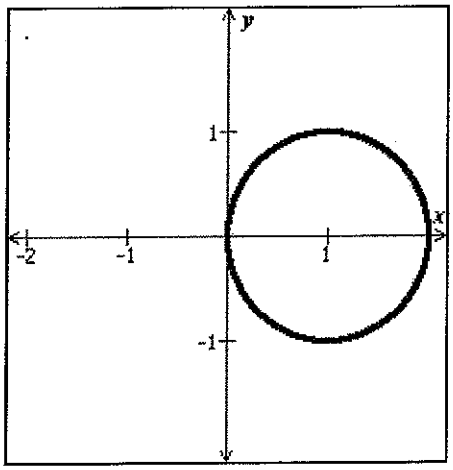
Function?:
Yes No



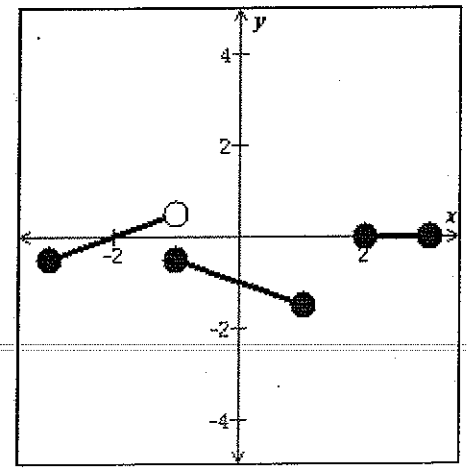
Function?:
Yes No



Function?:
Yes No



Function?:
Yes No



Function?:
Yes No

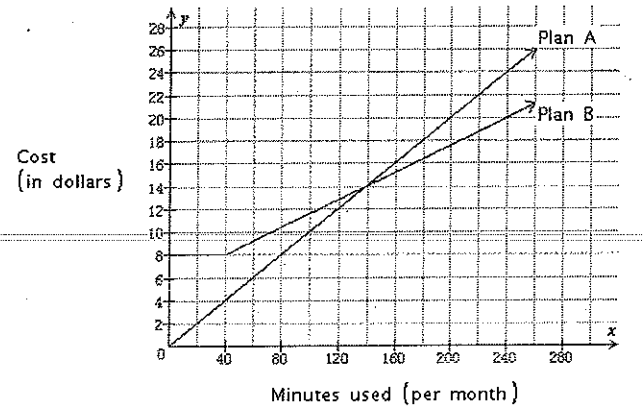
7. Suppose that the functions f and g are defined as follows.

$$f(x) = 3x - 2$$
$$g(x) = \sqrt{4x+1}$$

Find $f \cdot g$ and $f - g$. Then, give their domains using interval notation.

$(f \cdot g)(x) =$	[]
Domain of $f \cdot g$:	[]
$(f - g)(x) =$	[]
Domain of $f - g$:	[]

8. Kareem can choose Plan A or Plan B for his long distance charges. For each plan, cost (in dollars) depends on minutes used (per month) as shown below.

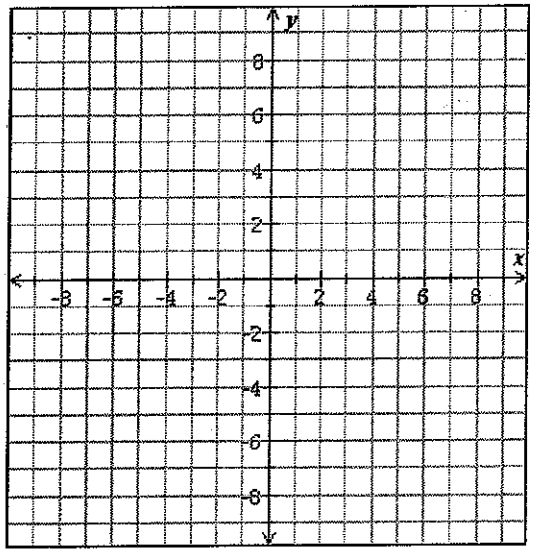


a. If Kareem makes 40 minutes of long distance calls for the month, which plan costs less? How much less does it cost than the other plan?

b. For what number of long distance minutes do the two plans cost the same? If the time spent on long distance calls is more than this amount, which plan costs more?

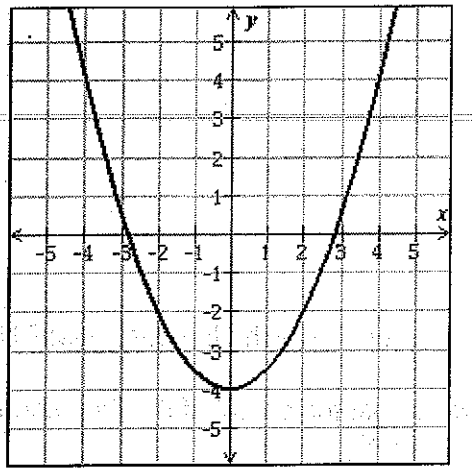
9. Graph the line.

$$2x+5y=10$$



10. Hong rented a truck for one day. There was a base fee of $\$16.99$, and there was an additional charge of 94 cents for each mile driven. Hong had to pay $\$267.97$ when he returned the truck. For how many miles did he drive the truck?

11. The graph of a function f is shown below.
Find $f(2)$ and find a value of x for which $f(x)=-4$.



12. Suppose that the functions p and q are defined as follows:

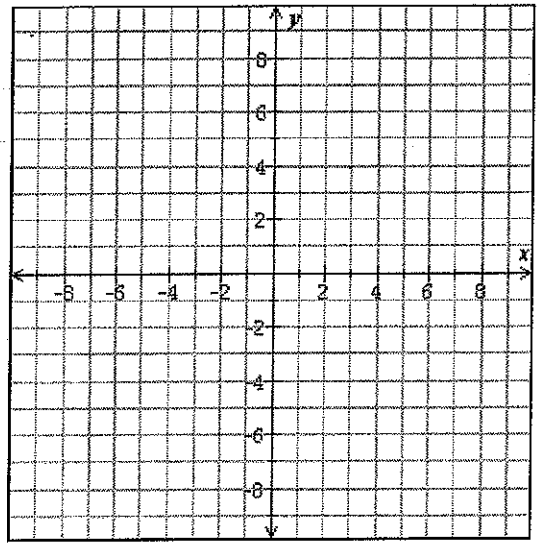
$$p(x) = x^2 + 4$$
$$q(x) = \sqrt{x+8}\ .$$

Find the following:

$$(q \circ p)(2)$$
$$(p \circ q)(2)$$

13. Graph the parabola:

$$y = (x-4)^2 - 3\ .$$



14. Find the domain of the function.

$$h(x) = \sqrt{-3x - 27}$$

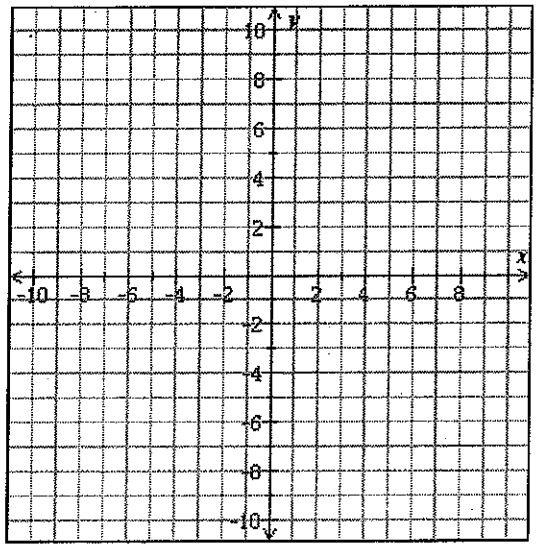
Write your answer using interval notation.

15. Suppose that the relation T is defined as follows.

$$T = \{(-4, 0), (-9, 2), (8, 2)\}$$

Give the domain and range of T.
Write your answers using set notation.

16. Graph the line with slope $-\frac{1}{3}$ passing through the point $(-3, 5)$.

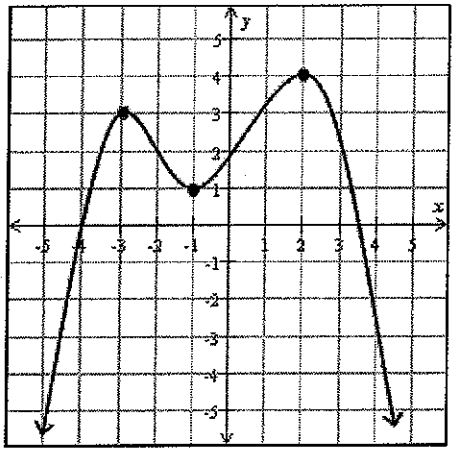


17. Use the graph of the function h below to find the following.

All values at which h has a local maximum

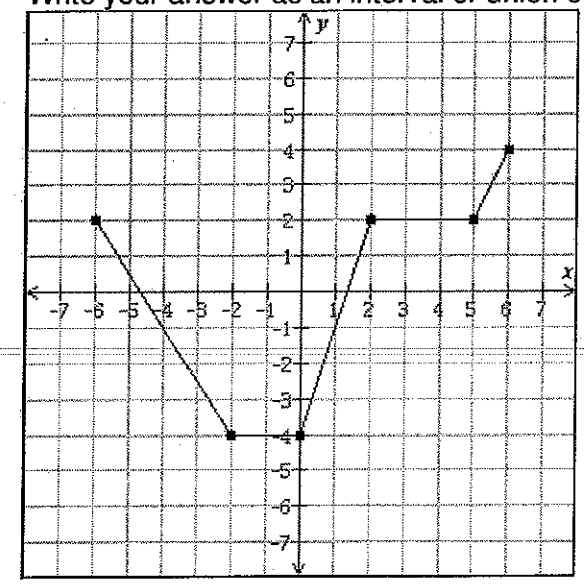
All local maximum values of h

If there is more than one answer, separate them with commas.



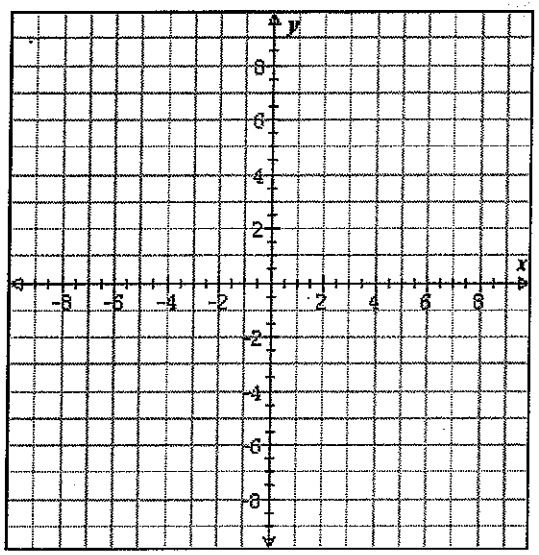
18. Determine the interval(s) on which the function is (strictly) increasing.

Write your answer as an interval or union of intervals.

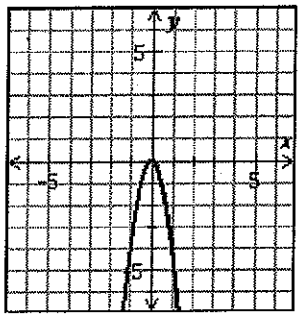


19. Graph the parabola:

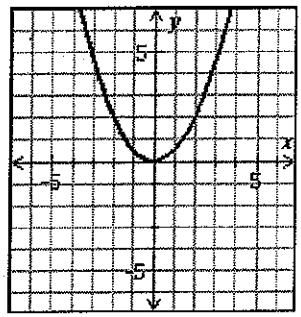
$$y=\frac{1}{2}x^2 .$$



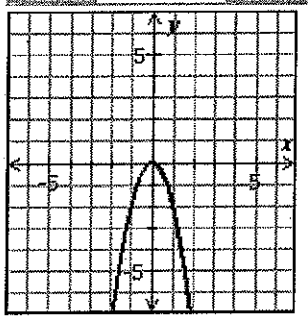
20. Look at the graphs and their equations below. Then fill in the information about the leading coefficients A, B, C, and D.



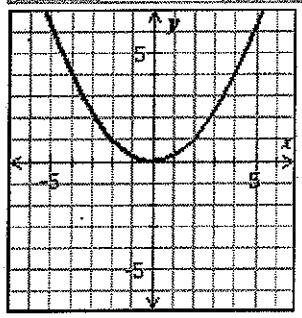
$y = Ax^2$



$y = Bx^2$



$y = Cx^2$

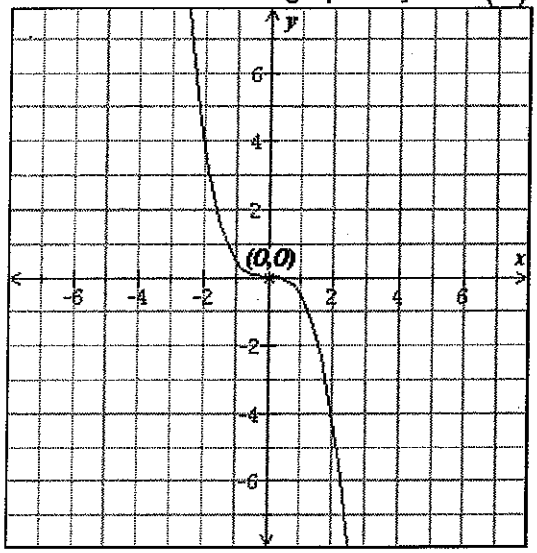


$y = Dx^2$

	A	B	C	D
(a) For each coefficient, choose whether it is positive or negative	- Positive - Negative	- Positive - Negative	- Positive - Negative	- Positive - Negative
(b) Choose the coefficient closest to 0	○	○	○	○
(c) Choose the coefficient with the greatest value	○	○	○	○

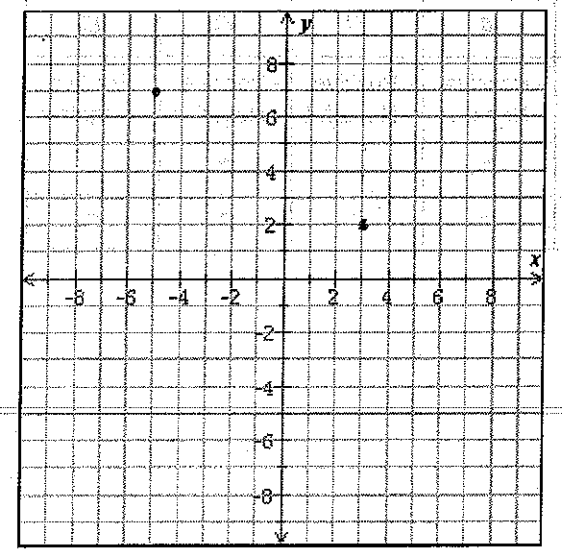
21. Below is the graph of $y=h(x)$.

Translate it to make it the graph of $y=h(x)+2$.



22. Graph the line.

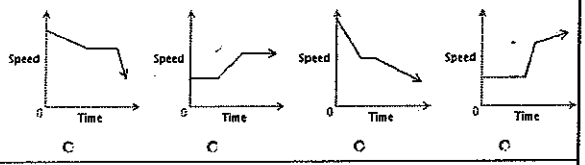
$$3x+2y=8$$



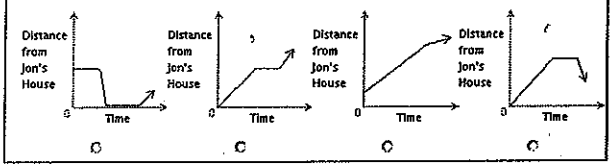
23. Find the slope of the line passing through the points $(-5,7)$ and $(3,2)$.

24. For each scenario below, choose the graph that gives the best representation.

(a) Amanda is working out by riding her bike. She starts by biking slowly at a constant rate. Then she gradually picks up speed until she reaches her peak. She maintains this peak speed for the rest of the workout.



(b) Jon leaves his house on his bike. He rides at a constant speed until he reaches a lemonade stand, where he parks his bike and takes a rest. Then he turns around and rides home as fast as he can.



25. Find the domain of the function.

$$f(x) = \frac{\sqrt{4+x}}{-4+2x}$$

Write your answer as an interval or union of intervals.