

Corrective Assignment



You are allowed to use a graphing calculator for 1-15



Find all extrema and roots for each function.

1. $y = x^4 - 4x^2 - x - 2$

Maximum Point(s) =

Minimum Point(s) =

Root(s) =

2. $f(x) = \frac{x^2-1}{x^{-1}+2}$

Maximum Point(s) =

Minimum Point(s) =

Root(s) =

Solve the systems of equations by graphing.

3. $y = \sqrt{4 - x^2}$
 $y = e^{2x-1} + 1$

4. $y = \frac{1}{x-1}$
 $y = \csc(x)$

Evaluate the function at the given point.

5. $f(x) = \pi e^{x^2-1}$ at $x = \pi$

6. $y = \sin^{-1}(x)$ at $x = \frac{4}{5}$

7. $f(x) = \sqrt{x^2 + 5} + 3x$ at $x = e$

8. $y = \cos^2(x) + \cot(x)$ at $x = \frac{\pi}{3}$

Use the STORE feature to evaluate the following.

9. STORE $x = \tan\left(\frac{\pi}{9}\right)$ and use RECALL to find
 $\sqrt{x^5} + \ln(x) + e^x$

10. STORE $x = e^\pi$ and use RECALL to find
 $-2\sqrt{x^2 + 1} + 2^{x/3}$

11. Solve the system of equations below. STORE the x coordinate of the left point of intersection as A . STORE the x coordinate of the right point of intersection as B .

$y = 4\cos^2\left(\frac{1}{2}x\right) - 1$

$y = -\sqrt{2x + 1} + 2$

Use RECALL to find $A - B$

12. Solve the system of equations below. STORE the x coordinate of the left point of intersection as A . STORE the x coordinate of the right point of intersection as B .

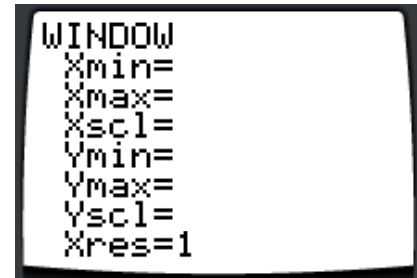
$y = \sqrt[3]{2x + 1}$

$y = -|2x + 1| + 3$

Use RECALL to find $A + B$

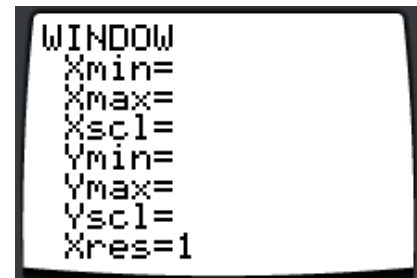
State the WINDOW that allows you to view the function. Answer the question.

13. Traffic flow is defined as the rate at which cars pass through an intersection, measured in cars per minute. The traffic flow at a particular intersection is modeled by the function F defined by $F(t) = 82 + 4 \sin\left(\frac{t}{2}\right)$ for $0 \leq t \leq 30$, where $F(t)$ is measure in cars per minute and t is measured in minutes.



When is the traffic flow at its lowest point(s) during this time?

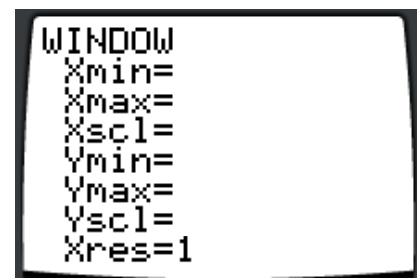
14. For $0 \leq t \leq 31$, the rate of change of the number of mosquitoes on Tropical Island at time t days is modeled by $R(t) = 5\sqrt{t} \cos\left(\frac{t}{5}\right)$ mosquitoes per day. There are 1000 mosquitoes on Tropical Island at time $t = 0$.



When is there no rate of change for the mosquitoes on Tropical Island?

State the WINDOW that allows you to view the function. Answer the question.

15. A tank contains 125 gallons of heating oil at time $t = 0$. During the time interval $0 \leq t \leq 12$ hours, heating oil is pumped into the tank at the rate $H(t) = \frac{10}{1+\ln(t+1)}$ gallons per hour.



What is the rate of at which oil is being pumped into the tank at $t = 8.5$?

ANSWERS TO CORRECTIVE ASSIGNMENT

1. max = $(-0.126, -1.937)$ min = $(-0.346/7, -4.618/9)$ and $(1.472/3, -7.444)$ roots = $(2.205/6, 0), (-2, 0)$	2. max = none min = $(0.455, -0.188/9)$ roots = $(-1, 0), (1, 0)$
3. $(-1.725, 1.011/2)$ $(0.471, 1.943/4)$	4. $(1.934/5, 1.07)$
5. 22344.473	6. 0.927
7. 11.674/5	8. 0.827
9. 0.508	10. 163.576
11. -1.208	12. $-2.442/3$
13. Xmin= 0 Xmax= 30 Xscl= 5 9.424/5 minutes and 21.991 minutes	Ymin= 0 Ymax= 90 Yscl= 10
14. Xmin= 0 Xmax= 31 Xscl= 5 0 days, 7.853/4 days and 23.561/2 days	15. Xmin= 0 Xmax= 12 Xscl= 2 3.075/6 gallons per hour
Ymin= -30 Ymax= 30 Yscl= 10	Ymin= 0 Ymax= 10 Yscl= 1