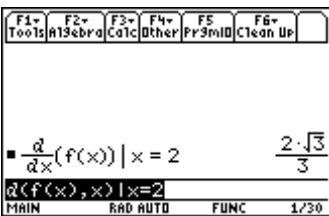


## Chapter 2

Results are shown with **Display Digits = FLOAT 10**.

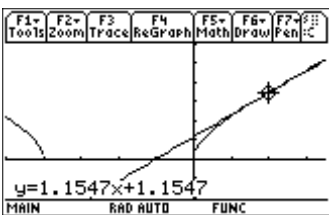
- |  |                |             |              |              |                 |
|--|----------------|-------------|--------------|--------------|-----------------|
| F1-<br>Tools   | F2-<br>Algebra | F3-<br>Calc | F4-<br>Other | F5<br>Pr3mID | F6-<br>Clean Up |
| Define $f(x) = \sqrt{x^2 + 4 \cdot x}$ Done<br>avgRC( $f(x)$ , $x$ )   $x = 2$<br>1.154652442<br>avgRC( $f(x)$ , $x$ )   $x = 2$ |                |             |              |              |                 |
| MAIN      RAD AUTO      FUNC      2/30   |                |             |              |              |                 |

F1- Tools	F2- Algebra	F3- Calc	F4- Other	F5 Pr3mID	F6- Clean Up
Done avgRC( $f(x)$ , $x$ )   $x = 2$ 1.154652442 avgRC( $f(x)$ , $x$ , $1.E^{-4}$ )   $x = 2$ 1.154695727 avgRC( $f(x)$ , $x$ , $.0001$ )   $x = 2$					
MAIN      RAD AUTO      FUNC      3/30					
- |  |                |             |              |              |                 |
|--|----------------|-------------|--------------|--------------|-----------------|
| F1-<br>Tools   | F2-<br>Algebra | F3-<br>Calc | F4-<br>Other | F5<br>Pr3mID | F6-<br>Clean Up |
| nDeriv( $f(x)$ , $x$ )   $x = 2$<br>1.154700554<br>nDeriv( $f(x)$ , $x$ , $1.E^{-4}$ )   $x = 2$<br>1.154700539<br>nDeriv( $f(x)$ , $x$ , $1.E^{-4}$ )   $x = 2$ |                |             |              |              |                 |
| MAIN      RAD AUTO      FUNC      2/30   |                |             |              |              |                 |
- |  |                |             |              |              |                 |
|--|----------------|-------------|--------------|--------------|-----------------|
| F1-<br>Tools   | F2-<br>Algebra | F3-<br>Calc | F4-<br>Other | F5<br>Pr3mID | F6-<br>Clean Up |
| lim avgRC( $f(x)$ , $x$ , $h$ )   $x = 2$<br>$h \rightarrow 0$<br>$\frac{2 \cdot \sqrt{3}}{3}$ avgRC( $f(x)$ , $x$ , $h$ ), $h, 0$   $x = 2$ |                |             |              |              |                 |
| MAIN      RAD AUTO      FUNC      1/30   |                |             |              |              |                 |
- |  |                |             |              |              |                 |
|--|----------------|-------------|--------------|--------------|-----------------|
| F1-<br>Tools   | F2-<br>Algebra | F3-<br>Calc | F4-<br>Other | F5<br>Pr3mID | F6-<br>Clean Up |
| lim avgRC( $f(x)$ , $x$ , $h$ )<br>$h \rightarrow 0$<br>$\frac{x + 2}{\sqrt{x \cdot (x + 4)}}$ avgRC( $f(x)$ , $x$ , $h$ ), $h, 0$ |                |             |              |              |                 |
| MAIN      RAD AUTO      FUNC      1/30   |                |             |              |              |                 |
- |   |                |             |              |              |                 |
|---|----------------|-------------|--------------|--------------|-----------------|
| F1-<br>Tools  | F2-<br>Algebra | F3-<br>Calc | F4-<br>Other | F5<br>Pr3mID | F6-<br>Clean Up |
| $\frac{d}{dx}(f(x)) = \frac{x + 2}{\sqrt{x \cdot (x + 4)}}$ d( $f(x)$ , $x$ ) |                |             |              |              |                 |
| MAIN      RAD AUTO      FUNC      1/30  |                |             |              |              |                 |

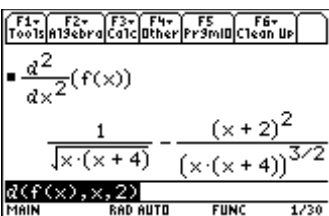
6. 

$$\frac{d}{dx}(f(x)) \Big|_{x=2} = \frac{2\sqrt{3}}{3}$$

$$d(f(x), x) \Big|_{x=2}$$

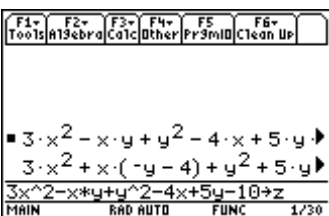
7. 

$$y = 1.1547x + 1.1547$$

8. 

$$\frac{d^2}{dx^2}(f(x)) = \frac{1}{\sqrt{x \cdot (x+4)}} - \frac{(x+2)^2}{(x \cdot (x+4))^{3/2}}$$

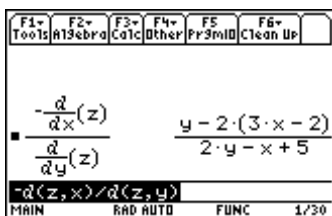
$$d^2(f(x), x, 2)$$

9. 

$$\frac{\partial}{\partial x}(z) = 3x^2 - x \cdot y + y^2 - 4x + 5y$$

$$\frac{\partial}{\partial y}(z) = 3x^2 + x \cdot (-y - 4) + y^2 + 5y$$

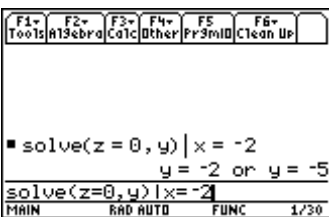
$$\frac{d(z, x)}{d(z, y)}$$



$$\frac{\partial}{\partial x}(z) = y - 2 \cdot (3x - 2)$$

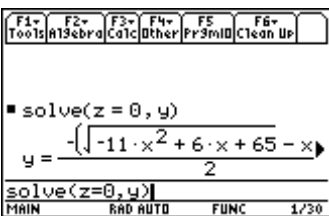
$$\frac{\partial}{\partial y}(z) = 2 \cdot y - x + 5$$

$$\frac{d(z, x)}{d(z, y)}$$

10. 

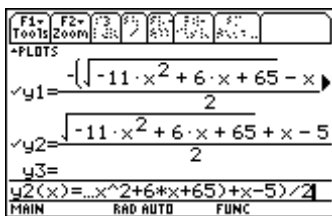
$$\text{solve}(z=0, y) \Big|_{x=-2}$$

$$y = -2 \text{ or } y = -5$$

11. 

$$\text{solve}(z=0, y)$$

$$y = \frac{-\sqrt{-11x^2 + 6x + 65} - x}{2}$$



$$y_1 = \frac{-\sqrt{-11x^2 + 6x + 65} - x}{2}$$

$$y_2 = \frac{\sqrt{-11x^2 + 6x + 65} + x - 5}{2}$$

$$y_3 = \frac{\sqrt{-11x^2 + 6x + 65} + x - 5}{2}$$

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>F1- Tools</td> <td>F2- Algebra</td> <td>F3- Calc</td> <td>F4- Other</td> <td>F5- Pr3mID</td> <td>F6- Clean Up</td> </tr> <tr> <td colspan="6" style="text-align: center;"> <math>\frac{d}{dx} \left( \frac{y-2(3x-2)}{2y-x+5} \right)</math> </td> </tr> <tr> <td colspan="6" style="text-align: center;"> <math>\frac{d}{dy} (z)</math> </td> </tr> <tr> <td colspan="6" style="text-align: center;"> <math>\frac{y-2(3x-2)}{2y-x+5}   x = -2 \text{ and } \blacktriangleright</math> </td> </tr> <tr> <td colspan="6" style="text-align: center;"> <math>-11/3</math> </td> </tr> <tr> <td colspan="6" style="text-align: center;"> <math>\frac{d}{dx} (2y-x+5)   x = -2 \text{ and } y = -5</math> </td> </tr> <tr> <td colspan="2">MAIN</td> <td colspan="2">RAD AUTO</td> <td colspan="2">FUNC 2/30</td> </tr> </table>	F1- Tools	F2- Algebra	F3- Calc	F4- Other	F5- Pr3mID	F6- Clean Up	$\frac{d}{dx} \left( \frac{y-2(3x-2)}{2y-x+5} \right)$						$\frac{d}{dy} (z)$						$\frac{y-2(3x-2)}{2y-x+5}   x = -2 \text{ and } \blacktriangleright$						$-11/3$						$\frac{d}{dx} (2y-x+5)   x = -2 \text{ and } y = -5$						MAIN		RAD AUTO		FUNC 2/30		OR	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>F1- Tools</td> <td>F2- Zoom</td> <td>F3- Trace</td> <td>F4- ReGraph</td> <td>F5- Math</td> <td>F6- Draw</td> <td>F7- Pen</td> <td>F8- C</td> </tr> <tr> <td colspan="8" style="text-align: center;"> </td> </tr> <tr> <td colspan="8" style="text-align: center;"> <math>dy/dx = -3.666667</math> </td> </tr> <tr> <td colspan="2">MAIN</td> <td colspan="2">RAD AUTO</td> <td colspan="4">FUNC</td> </tr> </table>	F1- Tools	F2- Zoom	F3- Trace	F4- ReGraph	F5- Math	F6- Draw	F7- Pen	F8- C									$dy/dx = -3.666667$								MAIN		RAD AUTO		FUNC			
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