



Graphing Calculator Investigation

A Preview of Lesson 3-6

Points of Intersection

Sharp EL-9900

You can use an EL-9900 graphing calculator to determine the points of intersection of a transversal and two parallel lines.

Example

Parallel lines ℓ and m are cut by a transversal t . The equations of ℓ , m , and t are $y = \frac{1}{2}x - 4$, $y = \frac{1}{2}x + 6$, and $y = -2x + 1$, respectively. Use a graphing calculator to determine the points of intersection of t with ℓ and m .

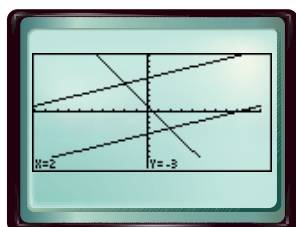
Step 1 Enter the equations in the Y= list and graph in the standard viewing window.

KEYSTROKES: $\boxed{Y=}$ $\boxed{(}$ $\boxed{1}$ $\boxed{\div}$ $\boxed{2}$ $\boxed{)}$ $\boxed{X/\theta/T/n}$ $\boxed{-}$ $\boxed{4}$ \boxed{ENTER} $\boxed{(}$ $\boxed{1}$ $\boxed{\div}$ $\boxed{2}$ $\boxed{)}$ $\boxed{X/\theta/T/n}$ $\boxed{+}$ $\boxed{6}$ \boxed{ENTER} $\boxed{(-)}$ $\boxed{2}$ $\boxed{X/\theta/T/n}$ $\boxed{+}$ $\boxed{1}$ \boxed{ZOOM} $\boxed{5}$

Step 2 Use the CALC menu to find the points of intersection.

- Find the intersection of ℓ and t .

KEYSTROKES: $\boxed{2ndF}$ $\boxed{[CALC]}$ $\boxed{2}$

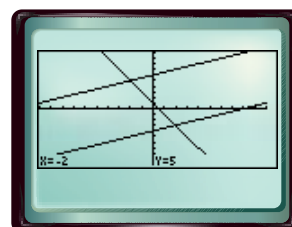


$[-10, 10]$ scl: 1 by $[-10, 10]$ scl: 1

Lines ℓ and t intersect at $(2, -3)$.

- Find the intersection of m and t .

KEYSTROKES: $\boxed{\blacktriangledown}$ $\boxed{2ndF}$ $\boxed{[CALC]}$ $\boxed{2}$



$[-10, 10]$ scl: 1 by $[-10, 10]$ scl: 1

Lines m and t intersect at $(-2, 5)$.

Exercises

Parallel lines a and b are cut by a transversal t . Use a graphing calculator to determine the points of intersection of t with a and b . Round to the nearest tenth.

1. $a: y = 2x - 10$
 $b: y = 2x - 2$
 $t: y = -\frac{1}{2}x + 4$

2. $a: y = -x - 3$
 $b: y = -x + 5$
 $t: y = x - 6$

3. $a: y = 6$
 $b: y = 0$
 $t: x = -2$

4. $a: y = -3x + 1$
 $b: y = -3x - 3$
 $t: y = \frac{1}{3}x + 8$

5. $a: y = \frac{4}{5}x - 2$
 $b: y = \frac{4}{5}x - 7$
 $t: y = -\frac{5}{4}x$

6. $a: y = -\frac{1}{6}x + \frac{2}{3}$
 $b: y = -\frac{1}{6}x + \frac{5}{12}$
 $t: y = 6x + 2$

