Topical Objectives:

(x_1, y_1)
(x_2, y_2)
$\Delta x =$
$(x_2 -$
$x_1)$
$\Delta y =$
$(y_2 -$
$y_1)$
$\sqrt{\Delta x^2 + \Delta y^2} =$
$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
$(1, 5)$
$(2, 3)$
$(0, 0)$
Δx
Δy
(x_1, y_1, z_1)
(x_2, y_2, z_2)
$\sqrt{\Delta x^2 + \Delta y^2 + \Delta z^2} =$
$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$
$(1, 5, 2)$
$(2, 3, 3)$
See
$(1, 5)$
12.1:41-
$(2, 3)$
58.
$\overline{P}$
See
$(2, 3, -4)$
12.1:11-
$Q =$
18
$(0, -1, 1)$
Q
$\vec{P}$
P
Q
$\vec{PQ}$
P
Q
$V =$
(v_1, v_2, v_3)
$\vec{v}$
O
V
$\vec{v} = \vec{OV} = \langle v_1, v_2, v_3 \rangle = v_1 i + v_2 j + v_3 k = (v_1, v_2, v_3) = \langle v \rangle_1 v_2 v_3.$

x
y
z
(v_1, v_2, v_3)
V
$\vec{v}$
R
R^2
(x_1, x_2)
R^3
(x_1, x_2, x_3)
R^n
$(x_1, x_2, \ldots, x_n)$
n
R
R^2
R^2
R^3
R^3
$\vec{x} =$
$\langle x_1, x_2, x_3 \rangle$
$\vec{y} =$
$\langle y_1, y_2, y_3 \rangle$
c
$\vec{x} +$
$\vec{y} =$
$(x_1 +$
$y_1, x_2 +$
$y_2, x_3 +$
$y_3)$
$c\vec{x} =$
(cx_1, cx_2, cx_3)
See
12.2:23-
24.
$\vec{0} =$
$\langle 0, 0 \rangle$
See
12.2:5-
6.
$\vec{u}$
$\vec{u} +$
$\vec{v}$
$\vec{u} -$

(x, y)
(x, y, z)
$\vec{r}(t) =$
$(3, -1)t$
$\vec{s}$
See
$\vec{r}(t) =$
$(1, 2)t +$
$(3, 4)$
$(x, y) =$
$(1, 2)t +$
$(3, 4)$
$(x, y) =$
$(1t +$
$3, 2t +$
$4)$
$t =$
$0, 1, 2$
$\vec{v} =$
$\langle v_1, v_2, v_3 \rangle$
$|\vec{v}| =$
$\sqrt{v_1^2 + v_2^2 + v_3^2}$
(v_1, v_2, v_3)
$\langle -2 \rangle$
$|-$
$2| =$
$\sqrt{(-2)^2} =$
2
$\hat{speed}$
bold
face
$\vec{v}$
$\hat{v} =$
$\frac{\vec{v}}{|\vec{v}|}$
$i =$
$\langle 1, 0, 0 \rangle$
$j =$
$\langle 0, 1, 0 \rangle$
$k =$
$\langle 0, 0, 1 \rangle$
$-3 +$
7
$\sqrt{58}$
$<$
$-4, 2, 4 >$
$<$
$\frac{-2}{3}, \frac{1}{3}, \frac{2}{3} >$
$8-$
See
$P =$
(1, 2, 3)
$Q =$
$(2, -1, 0)$
$\vec{PQ}$
$<$
$a, b, c)$
$\vec{PQ}$
$\vec{PQ}$
$\vec{PQ}$
$\vec{PQ}$
$(x, y) =$
$\vec{v}t =$
$(3t, -t)$
$\vec{r}(t) =$
$(1, 2)t +$
$(3, 4)$
$\vec{s}(t)$
See
$P =$
$(0, 2, 3)$
$\vec{v} =$
$\langle 2, -1, 2 \rangle$
$(x, y, z) =$
$(2, ?, ?)$
$P =$
(x_1, y_1, z_1)
$\vec{v} =$
$\langle v_1, v_2, v_3 \rangle$
$y =$
$mx +$
See
$P =$
$(3, 1)$