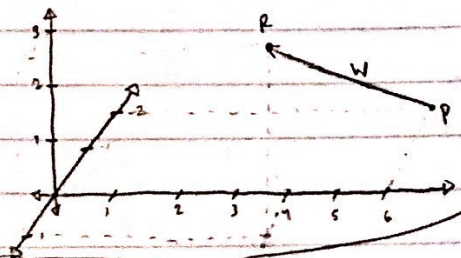


Homework 12.2 # 11, 13, 19, 25, 27, 31, 49, 51

09/13

11. $R = (1, 4, 3)$, $w = \vec{PR} = \langle 3, -2, 3 \rangle$ therefore $P = (-2, 6, 0)$



wrote it wrong read a question carefully!
not parallel $\langle -1, -2, 3 \rangle$

X 13. $a = \langle 2, 4, 6 \rangle$, $b = \langle -1, -2, -3 \rangle$, $c = \langle 7, -14, -21 \rangle$ are parallel to $v = \langle 4, 8, 12 \rangle$
 $a = \langle 2, 4, 6 \rangle$ points in the same direction as $v = \langle 4, 8, 12 \rangle$.

19. $-2\langle 8, 11, 3 \rangle + 4\langle 2, 1, 1 \rangle = \langle -16, -22, -6 \rangle + \langle 8, 4, 4 \rangle = \langle -8, -18, -2 \rangle$

25. $u \times v = \begin{vmatrix} i & j & k \\ 4 & 2 & -6 \\ 2 & -1 & 3 \end{vmatrix} = \langle 6-6, -12-12, -4-4 \rangle = \langle 0, -24, -8 \rangle$
 $|\langle 0, -24, -8 \rangle| = \sqrt{0^2 + (-24)^2 + (-8)^2}$

$u = \langle 4, 2, -6 \rangle$ and $v = \langle 2, -1, 3 \rangle$ are not parallel because $|u \times v|$ does not equal 0.

27. $u \times v = \begin{vmatrix} i & j & k \\ -3 & 1 & 7 \\ 6 & -2 & 8 \end{vmatrix} = \langle 8+8, 7+24, 6-6 \rangle = \langle 16, 48, 0 \rangle$
 $|\langle 16, 48, 0 \rangle| = \sqrt{16^2 + 48^2 + 0^2}$

$u = \langle -3, 1, 4 \rangle$ and $v = \langle 6, -2, 8 \rangle$ are not parallel because $|u \times v|$ does not equal 0.

? (31) $\langle \frac{4}{6}, -\frac{4}{6}, -\frac{2}{6} \rangle \rightarrow$ Do you need to simplify?

X 49. $P = (5, 5, 2)$, $v = \langle 0, -2, 1 \rangle$
 $r(t) = (5, 5, 2) + t\langle 0, -2, 1 \rangle = \langle 5, 5-2t, 2+t \rangle$
 $x=5$ $y=5-2t$ $z=2+t \rightarrow$ That's parametric

correction: multiply v by some scalar
 $\langle 0, -20, 10 \rangle$

51. $r_1(t) = \langle -1+4t, 2-2t, 2+t \rangle$ $r_2(t) = \langle 2t, 1, 1+t \rangle$
 $r(t) = \langle -1+4t=2t, 2-2t=1, 2+t=1+t \rangle$

$x: -1 = -2t$ $y: -2t = -1$ $z: 2 \neq 1$
 $t = 1/2$ $t = 1/2$ no solution

$r_1(t)$ and $r_2(t)$ do not intersect.