

Topic: Vectors

26.01

$$\begin{aligned}
 & 2\underline{u} - \underline{v} \\
 &= 2 \begin{pmatrix} -2 \\ 3 \\ 5 \end{pmatrix} - \begin{pmatrix} 0 \\ -4 \\ 7 \end{pmatrix} \\
 &= \begin{pmatrix} -4 \\ 6 \\ 10 \end{pmatrix} - \begin{pmatrix} 0 \\ -4 \\ 7 \end{pmatrix} \\
 &= \begin{pmatrix} -4 \\ 10 \\ 3 \end{pmatrix}
 \end{aligned}$$

26.02

$$\underline{u} = \begin{pmatrix} 6 \\ -13 \\ 18 \end{pmatrix}$$

$$\begin{aligned}
 |\underline{u}| &= \sqrt{6^2 + (-13)^2 + 18^2} \\
 &= \sqrt{36 + 169 + 324} \\
 &= \sqrt{529} \\
 &= 23
 \end{aligned}$$

26.03

$$\begin{aligned}
 & 3\underline{u} - 2\underline{v} \\
 &= 3 \begin{pmatrix} 2 \\ 0 \\ 1 \end{pmatrix} - 2 \begin{pmatrix} -1 \\ 2 \\ 4 \end{pmatrix} \\
 &= \begin{pmatrix} 6 \\ 0 \\ 3 \end{pmatrix} - \begin{pmatrix} -2 \\ 4 \\ 8 \end{pmatrix} \\
 &= \begin{pmatrix} 8 \\ -4 \\ -5 \end{pmatrix} \quad \boxed{D}
 \end{aligned}$$

26.04

$$\begin{aligned}
 & 2\underline{p} - \underline{q} - \frac{1}{2}\underline{r} \\
 &= 2 \begin{pmatrix} 2 \\ 5 \\ -7 \end{pmatrix} - \begin{pmatrix} 1 \\ 0 \\ -1 \end{pmatrix} - \frac{1}{2} \begin{pmatrix} -4 \\ 2 \\ 0 \end{pmatrix} \\
 &= \begin{pmatrix} 4 \\ 10 \\ -14 \end{pmatrix} - \begin{pmatrix} 1 \\ 0 \\ -1 \end{pmatrix} - \begin{pmatrix} -2 \\ 1 \\ 0 \end{pmatrix} \\
 &= \begin{pmatrix} 5 \\ 9 \\ -13 \end{pmatrix} \quad \boxed{C}
 \end{aligned}$$

26.06

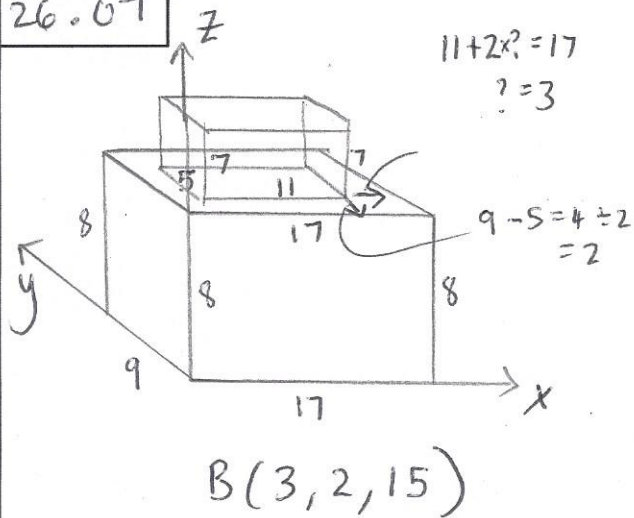
$$\begin{aligned}
 & \underline{p} = \begin{pmatrix} -5 \\ 3 \end{pmatrix} \quad \underline{q} = \begin{pmatrix} 4 \\ -5 \end{pmatrix} \\
 & \underline{p} + \underline{q} = \begin{pmatrix} -5 \\ 3 \end{pmatrix} + \begin{pmatrix} 4 \\ -5 \end{pmatrix} \iff \\
 &= \begin{pmatrix} -1 \\ -2 \end{pmatrix}
 \end{aligned}$$

26.05

$$\begin{aligned}
 & B(8, 4, 10) \\
 & C(4, 0, 0)
 \end{aligned}$$

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26.07



26.08

$B(6, 6, 0)$

26.09

not in Nat 5
please ignore

26.10

$A(0, 2, 2)$

26.11

$P(8, 0, 3)$
 $Q(0, 4, 3)$

26.13

$B(4, 4, 0)$

(26.12 is not in
Nat 5 - ignore)