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2.27 [15] Referring to Fig.2.25, give the value of 

This Fig.2.25 shows a frame {B} which is rotated relative to frame {A} aboutby 180 degrees and translated 3 units in, and 0 units in, and 0 units in. The definition of frame {B} is

   

  

 

 {A} TO {B}



2.28 [15] Referring to Fig.2.25, give the value of 

To obtain frame {C}, we need two steps.

First, from frame {A} to frame {TEMP}

Frame {TEMP} which is rotated relative to frame {A} aboutby 270 degrees and translated 0 units in, and 0 units in, and 0 units in.

Second, from frame {TEMP} to frame {C}

Frame {C} which is rotated relative to frame {TEMP} aboutby 60 degrees and translated 2 units in (-2) and 0 units in, and 3 units in. Finally, the definition of frame {C} is

   

  

 

 {A} TO {TEMP}

   

 

  

 {TEMP} TO {C}



2.29 [15] Referring to Fig.2.25, give the value of 

We have two solutions in this case.

First solution will only be described and the second solution will be given in details

**First Solution:**

To obtain frame {C}, we need two steps.

First, from frame {B} to frame {TEMP}

Frame {TEMP} which is rotated relative to frame {B} aboutby 90 degrees and translated 0 units in, and 0 units in, and 0 units in.

Second, from frame {TEMP} to frame {C}

Frame {C} which is rotated relative to frame {TEMP} aboutby 210 degrees and translated 2 units in(-2), and 0 units in, and 0 units in. Finally, the definition of frame {C} is

  

 

   

 {B} TO {TEMP}

   

   

 {TEMP} TO {C}



**Second Solution:**









2.30 [15] Referring to Fig.2.25, give the value of 



2.31[15] Referring to Fig.2.26, give the value of 

To obtain frame {B}, we need two steps.

First, from frame {A} to frame {TEMP}

Frame {TEMP} which is rotated relative to frame {A} aboutby 180 degrees and translated 0 units in, and 0 units in, and 0 units in.

Second, from frame {TEMP} to frame {B}

Frame {B} which is rotated relative to frame {TEMP} aboutby 90 degrees and translated 0 units in and 4 units in(-4), and 2 units in. Finally, the definition of frame {B} is

   

  



 {A} TO {TEMP}

  

  

 

 {TEMP} TO {B}



2.33 [15] Referring to Fig.2.26, give the value of 

To obtain frame {C}, we need two steps.

First, from frame {B} to frame {TEMP}

Frame {TEMP} which is rotated relative to frame {B} about by 90 degrees and translated 0 units in, and 0 units in, and 0 units in.

Second, from frame {TEMP} to frame {C}

Frame {C} which is rotated relative to frame {TEMP} aboutby (180 + 90-36.9)= 233.1 degrees and translated 3 units in and 0 units in, and 0 units in. Finally, the definition of frame {C} is

 

  

  

 {B} TO {TEMP}

 

 

    

 {TEMP} TO {C}

