12-01 Spindle Control Q+A

The main objective of these questions is to review the general concepts of controlling various programming aspects of the spindle, for both machining centers and lathes.

#	Question	Answer
1	Specify a standard program entry for 1287 r/min in counterclockwise direction	
2	If the surface speed is given as 45 m/min, calculate the spindle speed (r/min) for a ∅15 mm end mill?	
3	Describe the ***Spindle Orientation*** feature of a typical CNC machining center	
4	If the surface speed is 300 ft/min and the tool diameter is ∅0.75 - what will the S value in the program?	
5	Specify all units that are used for spindle programming	

6	Describe the difference between these two blocks:
	
	`G96 S300 M03`
	
	and
	
	`G97 S300 M03`
		`G96 S300 M03`
		
		`G97 S300 M03`

7	Specify the ***complete*** formula to calculate r/min for the ENGLISH units ***(based on known surface speed and diameter)***	**r/min =**
8	Specify the ***complete*** formula to calculate r/min for the METRIC units ***(based on known surface speed and diameter)***	**r/min =**

9	Name at least three M-functions that cause a rotating spindle to stop	
10	What does the abbreviation CSS stand for?	
11	With program commands **G50 S1300** and **G96 S475** ***(475 ft/min)***, at which diameter will the spindle be clamped and CSS stops?	
12	If the surface speed is 110 m/min and the tool is ∅18 mm - what will the programmed r/min be?	
13	Explain the following three program blocks: **G21** **G50 S1800** **G96 S100 M03**	**G21** _____ **G50 S1800** _____ **G96 S100 M03**
14	Name as many program words as possible that relate directly to the spindle control of a CNC machine (for both turning and milling)	
15	Provide an accurate definition of the spindle rotation direction ***(CW and CCW)***	