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| 13-1 A **17-tooth** spur pinion has a diametral **pitch of 8** teeth/in, runs at **1120 rev/min**, and drives a gear at a speed of **544 rev/min**. Find the **number of teeth** on the gear and the theoretical center-to-center distance. |  |

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| 13-2 A **15-tooth** spur pinion has a module of **3 mm** and runs at a speed of **1600 rev/min**. The driven gear has **60 teeth**. Find the **speed** of the driven gear, the **circular pitch**, and the theoretical **center-to-center distance.** |  |

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| 13-8 To avoid the problem of interference in a pair of spur gears using a 20° pressure angle, specify  the minimum number of teeth allowed on the pinion for each of the following gear ratios.   1. (*a*)  2 to 1 2. (*b*)  3 to 1 3. (*c*)  4 to 1 4. (*d*)  5 to 1 |  |