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| 8-12  **8–11**An **M14x2 hex-head** bolt with a nut is used to clamp together two 15-mm **steel plates**.  (*a*) Determine a suitable length for the bolt, rounded up to the nearest **5 mm.**  **8–12**Repeat Prob. 8–11 with the addition of one **14R metric** plain **washer** under the nu  **Table A-33**    3.5mm  H = 14.1  (*b*) Determine the bolt stiffness.      **Kb = 808.24**  (*c*) Determine the stiffness of the members.    **Km = 2968.863349** | Washer = 3.5  Bolt-  -Nut  |---------| L  |--|--| 2 \*15 =30  3.5 +2\*15 = 33.5  L = 33.5 + 14.1 = 47.6 ~= **50 mm (1)** |

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| * 1. Repeat Prob. 8–14 with the **cast-iron plate having a threaded** hole to eliminate the nut.   A 2-in steel plate and a **1-in** **cast-iron** plate are compressed with one bolt and nut. The bolt is **½ in-13 UNC**.   1. Determine a **suitable length** for the bolt, rounded up to the nearest ¼     (*b*) Determine the bolt stiffness. (*c*) Determine the stiffness of the members. |  |