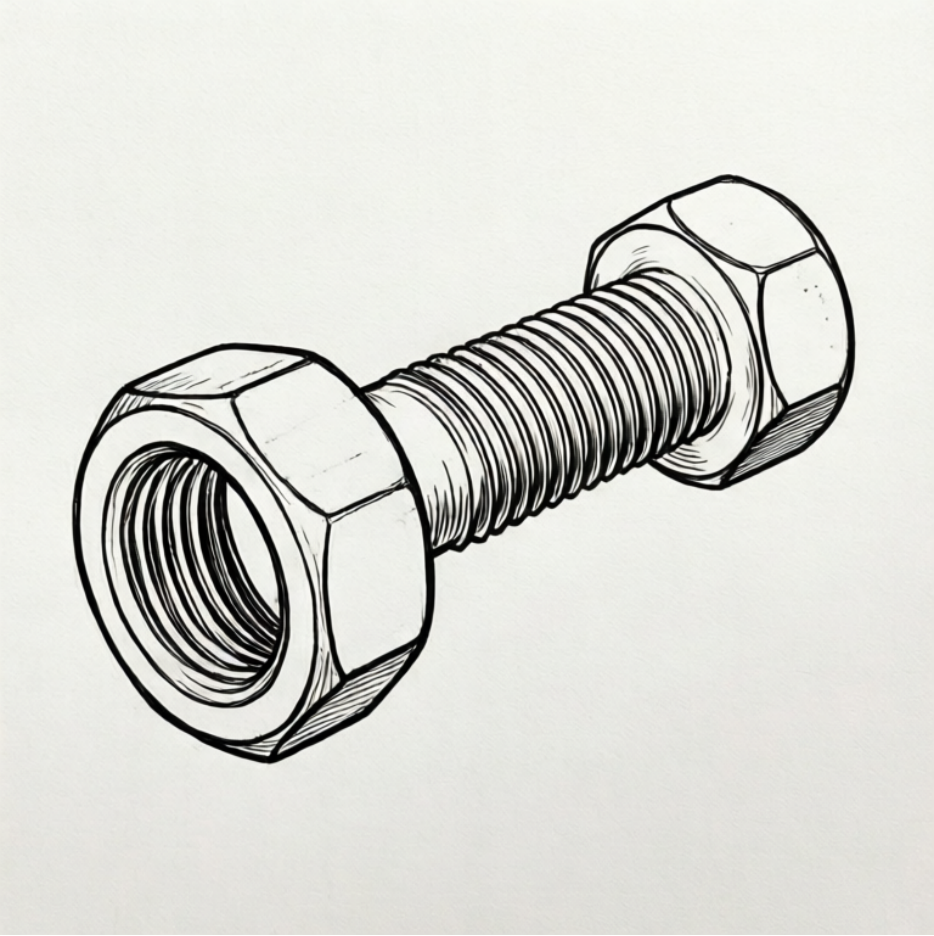
Nut and Bolt Drawing: Threaded Fastener Construction

Topic reference / ordinary illustration



Ordinary topic reference. Hypothetical dimensions in the four tasks are supplied in their own text; this illustration is not their measured answer.

Nut and Bolt Drawing: Threaded Fastener Construction

Worked example / complete source key

A bolt has an across-flats head width of 24 mm and a shaft diameter of 16 mm. The threaded length is 32 mm and the chosen pitch is 4 mm. Calculate the number of thread spaces and state the across-corners width using the hypothetical formula across-corners = across-flats divided by cosine of 30 degrees.

Answer: Number of thread spaces = 32 mm divided by 4 mm = 8 spaces. Across-corners width = 24 mm divided by 0.866 (cosine of 30 degrees) ≈ 27.7 mm.

Reason: Thread spaces are found by dividing threaded length by pitch. The across-corners width is larger than across-flats because the hexagon corners extend beyond the flats; the cosine relationship gives the conversion for a regular hexagon.

Check: Multiply 8 spaces by 4 mm to recover 32 mm. Multiply 27.7 mm by 0.866 to recover about 24 mm.