Draw a Bolt: Hex Head, Threaded Shaft, and Side-View Proportion

Original task 1 / independent drawing and calculation

Task 1

Using L = 80 mm, draw a side-view bolt with shaft diameter 20 mm, head length 48 mm, head width 72 mm, thread pitch 4 mm, and threaded length 56 mm. State the expected number of thread marks.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 2 / independent drawing and calculation

Task 2

A student draws a bolt with L = 120 mm, shaft diameter 30 mm, head length 72 mm, head width 108 mm, pitch 6 mm, and threaded length 84 mm. How many thread marks should appear, and what simple proportion check confirms the head is correct?

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 3 / independent drawing and calculation

Task 3

Draw a side-view bolt with L = 60 mm, shaft diameter 15 mm, head length 36 mm, head width 54 mm, pitch 3 mm, and threaded length 42 mm. Describe where the unthreaded section is and how many thread marks you expect.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

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Original task 4 / independent drawing and calculation

Task 4

A drawing uses L = 90 mm, shaft diameter 22.5 mm, head length 54 mm, head width 81 mm, pitch 4.5 mm, and threaded length 63 mm. Calculate the thread mark count and explain one way to check even spacing without counting every mark.

Keep the original task measurements. Use the full drawing sheet in this PDF for a response needing more room; use the stated paper size when a task specifies larger paper.

Full drawing sheet / reusable blank workspace

Reusable full drawing sheet for Tasks 1 to 4. Print another copy when needed. Keep all original task measurements; if a task specifies larger paper, use that paper size.