

Unit 7 SUBTRACTION OF COMMON FRACTIONS

BASIC PRINCIPLES OF SUBTRACTION

As in addition, fractions must be expressed with common denominators before subtracting. Subtract the numerators and express the difference over the common denominator.

Example: Subtract $\frac{1}{2}$ from $\frac{2}{3}$.

$$\frac{2}{3} - \frac{1}{2} = \frac{4}{6} - \frac{3}{6}$$

Express with common denominators

$$\frac{4-3}{6} = \frac{1}{6}$$

Subtract numerators

To subtract a fraction from a whole number or a mixed number, express the whole number as an improper fraction, with a denominator common to the denominator of the fraction.

Example: Subtract $\frac{2}{3}$ from 5.

$$5 - \frac{2}{3} = \frac{15}{3} - \frac{2}{3}$$

Express with common denominator

$$\frac{15-2}{3} = \frac{13}{3}$$

Subtract numerators

$$\frac{13}{3} = 4\frac{1}{3}$$

Express as a mixed number

PRACTICAL PROBLEMS

1. Subtract $\frac{5}{8}$ inch from $\frac{29}{32}$ inch. _____
2. Subtract $\frac{3}{4}$ inch from $\frac{31}{32}$ inch. _____
3. Find the thickness of a board $\frac{3}{4}$ inch thick after $\frac{1}{16}$ inch is planed off one side. _____
4. A rough board $5\frac{7}{8}$ inch wide has $\frac{1}{8}$ inch taken off by planing on one edge. What is its width? _____

5. A countertop is laminated with $\frac{1}{16}$ -inch plastic. The total thickness is $1\frac{3}{16}$ inch. What is the thickness of the top without the laminate?
6. How much must a $\frac{7}{8}$ -inch board be planed to make it the required thickness of $\frac{25}{32}$ inch?
7. The thickness of a piece of three-ply wood is $\frac{1}{2}$ inch. It was made by gluing $\frac{1}{8}$ -inch veneer to both faces of a core. Find the thickness of the core stock.

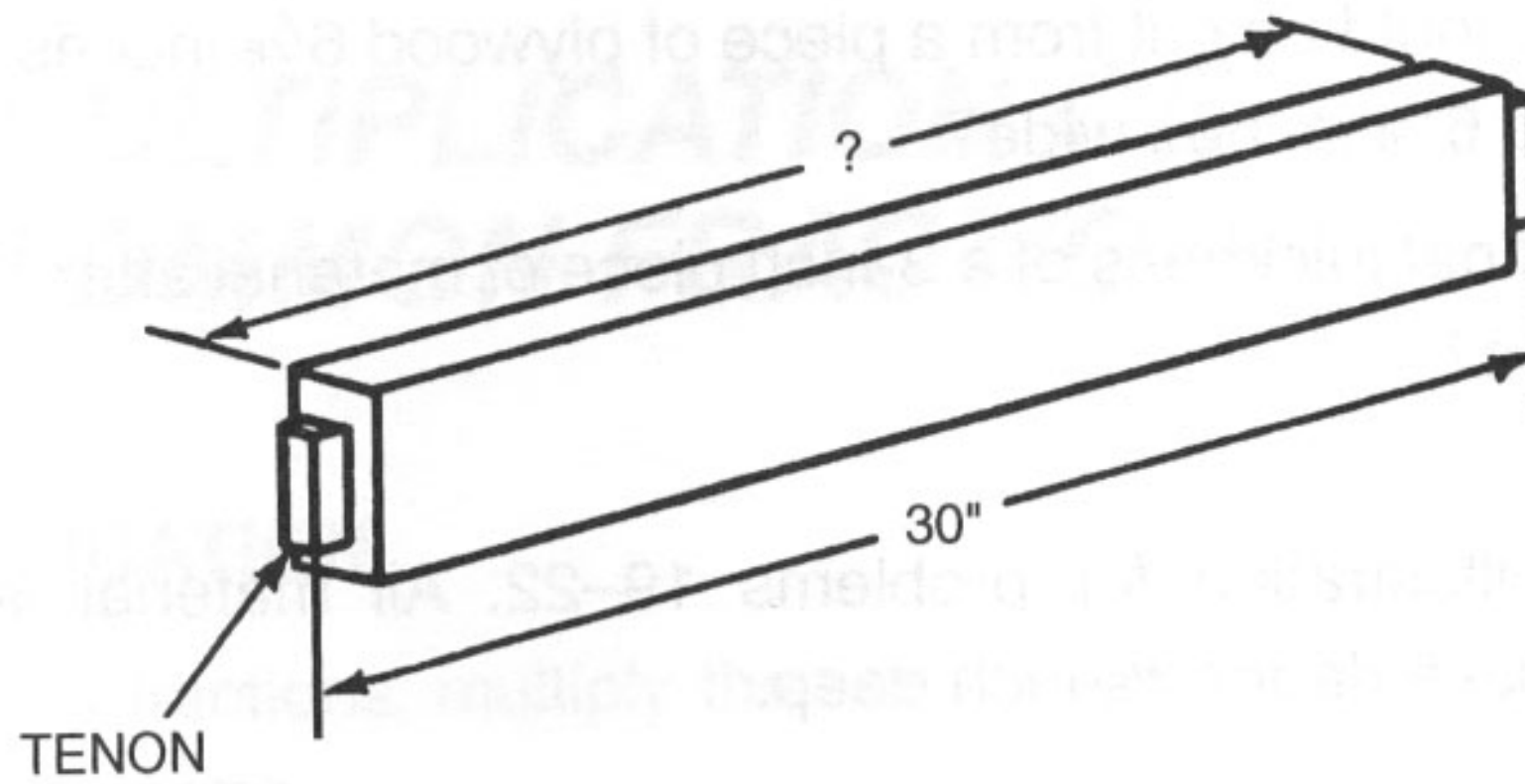
Note: The length of nails are measured in *penny*, or *d*, units. A 2 penny nail, abbreviated 2d, is 1 inch long. Lengths of nails are found on a nail chart. Use this chart to solve problem 8.

Penny (d) Size	Length in Inches
2	1
3	$1\frac{1}{4}$
4	$1\frac{1}{2}$
5	$1\frac{3}{4}$
6	2
7	$2\frac{1}{4}$
8	$2\frac{1}{2}$
10	3
12	$3\frac{1}{4}$
16	$3\frac{1}{2}$
20	4

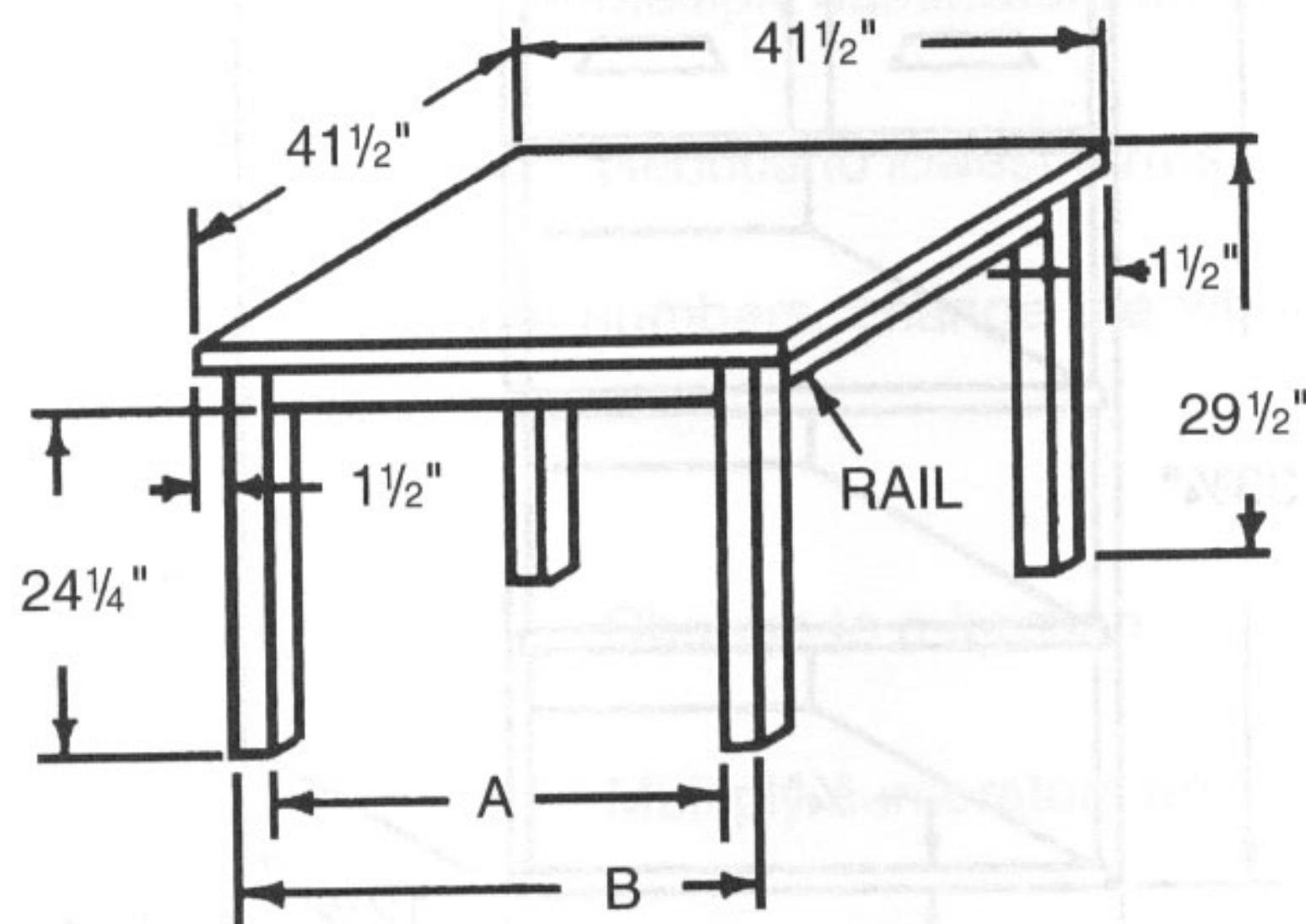
NAIL CHART

8. How much longer is a 12d nail than an 8d nail?
9. Find the difference in width of two pieces of hardwood flooring $2\frac{5}{32}$ inch by $2\frac{5}{8}$ inches and $2\frac{5}{32}$ inch by $1\frac{5}{8}$ inches.

10. As shown in the illustration, the rail for a table is to have a $\frac{3}{4}$ -inch tenon cut on each end. If the finished length of the stock is 30 inches, what is the distance between the shoulders?



Note: Use this illustration for problems 11–15.

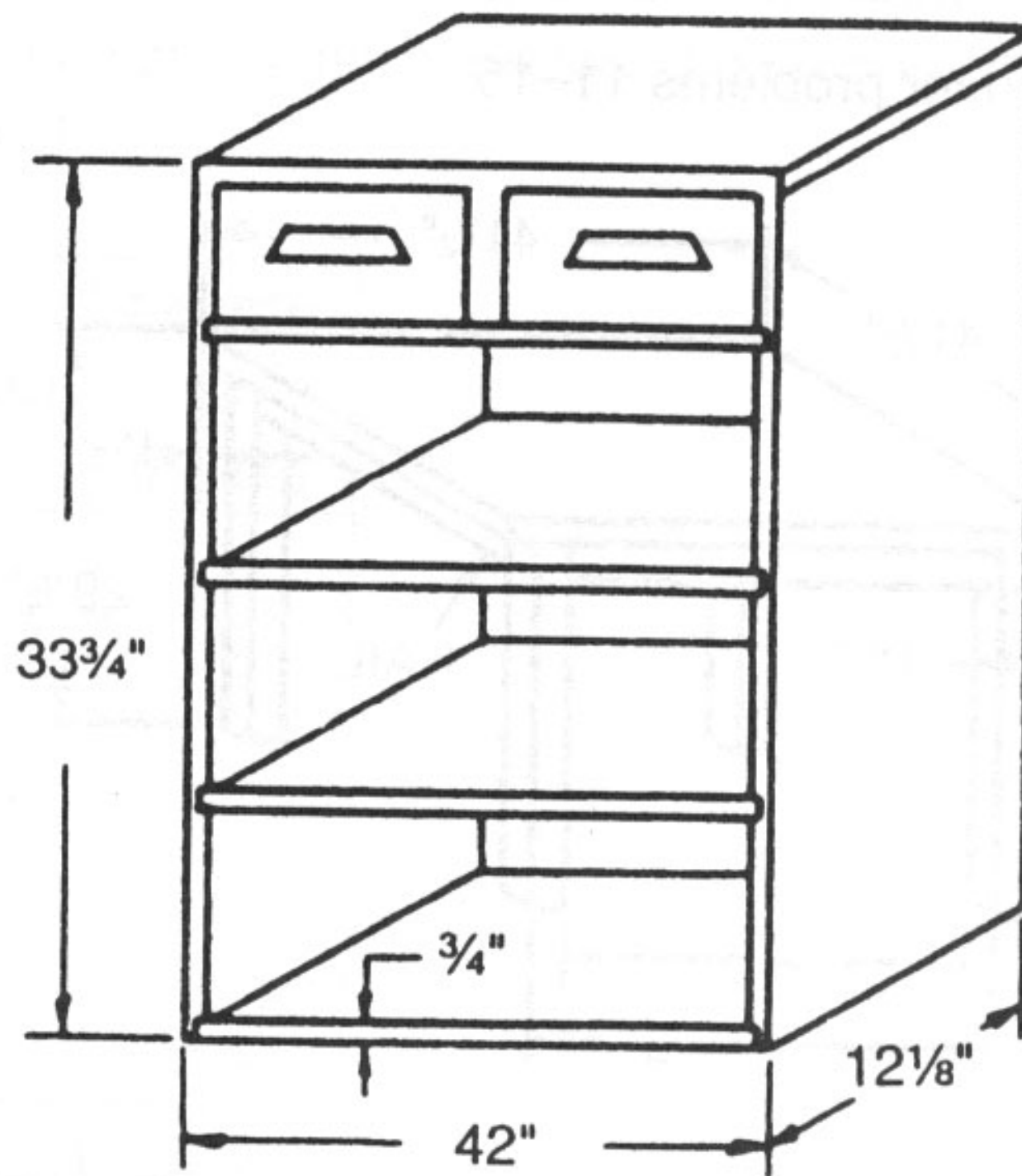


11. The illustration shows an oblique view of a platform. The top is $\frac{3}{4}$ inch thick. How long are the legs? _____
12. The legs on this platform are $2\frac{1}{4}$ inches square. What is the length of the rail between the legs? _____
13. If the platform top is $\frac{3}{4}$ inch thick, what is the width of the rail? _____
14. Find measurement B from the outside face of one platform leg to the outside face of the other leg. _____
15. How long should the rail be cut if $1\frac{1}{4}$ inches are added on each end for the tenons? (The legs are $2\frac{1}{4}$ inches square.) _____
16. Turned spindles for a room divider are purchased in standard lengths of 60 inches. The opening in which they are used has a height of $56\frac{7}{8}$ inches. How much must be cut off each spindle? _____

17. How much should be cut from a piece of plywood $6\frac{7}{8}$ inches wide in order to have a piece $6\frac{1}{4}$ inches wide? _____
18. What is the final thickness of a 3-inch piece of material after $\frac{1}{8}$ inch is planed off *both* faces? _____

Note: Use this illustration for problems 19–22. All material is $\frac{3}{4}$ -inch thick. Shelves have dados $\frac{3}{8}$ -inch deep.

19. What is the overall length of the shelves in this cabinet?
20. What is the inside distance between the sides of this cabinet?
21. The shelves are spaced 11 inches, top-to-top. What is the distance between two shelves?
22. The back of the cabinet is $\frac{3}{4}$ -inch thick. What is the depth of the shelves if the back sets flush with the back edge of the sides?



Note: Use this illustration for problem 23.

23. Each shutter installed in a “pass-thru” opening has a height of $25\frac{7}{8}$ inches. How much must be cut off the top of each shutter to make it fit? _____

