Percentage Waste Questions & Answers Worksheet 2

Q1. Calculate the percentage waste when 13 circular tops, radius 150mm, are cut from a sheet of MDF measuring 1.220m x 2.m.

Area of MDF sheet = 1.220 x 2.0 = 2.44m²

Area of stool seat = 3.14 x 0.15 x 0.15 = 0.070m²

Area of 13 stool seats = 0.070 x 13 = 0.91m²

Sheet Area - 13 stool seats = Waste

2.44 - 0.91 = 1.53m²

Waste ÷ Sheet Area = Percentage waste

1.53 ÷ 2.44 = 0.627, 0.627 x 100 = 62.7%

Percentage waste = 62.7%

Q2. Calculate the percentage waste when 8 half round tabletops, 460mm in diameter, are cut from a sheet of pine measuring 1.220m x 2.440m.

Area of MDF sheet = 1.220 x 2.440 = 2.976m²

Area of 1 round top = (3.14 x 0.23 x 0.23) = 0.1661m²

Area of 1 half round top = 0.1661m ÷ 2 = 0.083

Area of 8 half round tops = 0.083 x 8 = 0.664m²

Sheet Area - 8 half round tops = Waste 2.976 - 0.664 = 2.312m²

Waste ÷ Sheet Area = Percentage waste

2.312 ÷ 2.976 = 0.7768 (x 100)

Percentage waste = 77.68%

Q3. Calculate the percentage waste when 15 Tops, 400mm x 300mm are cut from a sheet of MDF measuring 1.220m x 2.150mm.

Area of MDF sheet = 1.220 x 2.150 = 2.623m²

Area of 1 top = 0.400 x 0.300 = 0.12m²

Area of 15 tops = 0.12 x 15 = 1.8m²

Sheet Area – 15 Tops = Waste

2.623 - 1.8 = 0.823m²

Waste ÷ Sheet Area = Percentage waste

0.823 ÷ 2.623 = 0.3136 (x 100)

Percentage waste = 31.36%

Q4. Calculate the percentage waste when 9 Tops, 375mm x 380mm are cut from a sheet of MDF measuring 1.220m x 1.450m.

Area of MDF sheet = 1.220 x 1.450 = 1.796m²

Area of 1 top = 0.375 x 0.380 = 0.142m²

Area of 9 tops = 0.142 x 9 = 1.2825m²

Sheet Area – 9 Tops = Waste

1.796 - 1.2825 = 0.5135m²

Waste ÷ Sheet Area = Percentage waste

0.5135 ÷ 1.796 = 0.2859 (x 100)

Percentage waste = 28.59%

Q5. Calculate the percentage waste when 16 tops, 400mm in width x 300mm are cut from a sheet of MDF measuring 1.220m x 2.400m.

Area of MDF sheet = 1.220 x 2.400 = 2.928m²

Area of 1 top = 0.400 x 0.300 = 0.12m²

Area of 16 tops = 0.12 x 16 = 1.92m²

Sheet Area – 16 Tops = Waste

2.928 - 1.92 = 1.008m²

Waste ÷ Sheet Area = Percentage waste

1.008 ÷ 2.928 = 0.3442 (x 100)

Percentage waste = 34.42%

Q6. Calculate the percentage waste when 8 half round tabletops, 580mm in diameter, are cut from a sheet of pine measuring 1.220m x 2.440m.

Area of MDF sheet = 1.220 x 2.440 = 2.976m²

Area of 1 round top = (3.14 x 0.29 x 0.29) = 0.2642m²

Area of 1 half round top = 0. 2642m ÷ 2 = 0.1321

Area of 8 half round tops = 0.1321 x 8 = 01.0568m²

Sheet Area - 8 half round tops = Waste 2.976 - 01.0568 = 1.919m²

Waste ÷ Sheet Area = Percentage waste

1.919 ÷ 2.976 = 0. (x 100)

Percentage waste = 64.48%

Q7. Calculate the percentage waste when 16 circular stool seats, radius 200mm, are cut from a sheet of MDF measuring 1.220m x 2.440m.

Area of MDF sheet = 1.220 x 2.440 = 2.928m²

Area of stool seat = 3.14 x 0.20 x 0.20 = 0.1256m²

Area of 16 stool seats = 0.1256 x 16 = 2.010m²

Sheet Area - 16 stool seats = Waste

2.928 - 2.010m = 0.917m²

Waste ÷ Sheet Area = Percentage waste

0.917 ÷ 2.928 = 0.3133, 0.3133 x 100 = 62.7%

Percentage waste = 31.33%

Q8. Calculate the percentage waste when 6 half round tabletops, 540mm in diameter, are cut from a sheet of pine measuring 1.220m x 2.440m.

Area of MDF sheet = 1.220 x 2.440 = 2.976m²

Area of 1 round top = (3.14 x 0.27 x 0.27) = 0.229m²

Area of 1 half round top = 0. 229 ÷ 2 = 0.1145 m²

Area of 6 half round tops = 0.1145 x 6 = 0.687m²

Sheet Area - 6 half round tops = Waste 2.976 - 0.687= 2.289m²

Waste ÷ Sheet Area = Percentage waste

2.289 ÷ 2.976 = 0.7691 (x 100)

Percentage waste = 76.91%

Q9. Calculate the percentage waste when 6 half round tabletops, 840mm in diameter, are cut from a sheet of pine measuring 1.220m x 2.440m.

Area of MDF sheet = 1.220 x 2.440 = 2.976m²

Area of 1 round top = (3.14 x 0.42 x 0.42) = 0.5541m²

Area of 1 half round top = 0. 5541 ÷ 2 = 0.277 m²

Area of 6 half round tops = 0.277 x 6 = 1.6625m²

Sheet Area - 6 half round tops = Waste 2.976 - 1.6625 = 1.3134m²

Waste ÷ Sheet Area = Percentage waste

1.3134 ÷ 2.976 = 0.4413 (x 100)

Percentage waste = 44.13%