```
C:\Users\Hamed\AppData\Local\Programs\Python\Python39\python.exe D:\Projects\AIMaster\BasicMathOps_UsingDeepLearning\Core.py
2026-02-12 21:43:50.214689: I tensorflow/core/util/port.cc:153] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable `TF_ENABLE_ONEDNN_OPTS=0`.
2026-02-12 21:44:22.072489: I tensorflow/core/util/port.cc:153] oneDNN custom operations are on. You may see slightly different numerical results due to floating-point round-off errors from different computation orders. To turn them off, set the environment variable `TF_ENABLE_ONEDNN_OPTS=0`.
Generating dataset...
C:\Users\Hamed\AppData\Local\Programs\Python\Python39\lib\site-packages\keras\src\layers\core\dense.py:93: UserWarning: Do not pass an `input_shape`/`input_dim` argument to a layer. When using Sequential models, prefer using an `Input(shape)` object as the first layer in the model instead.
  super().__init__(activity_regularizer=activity_regularizer, **kwargs)
2026-02-12 21:45:01.355244: I tensorflow/core/platform/cpu_feature_guard.cc:210] This TensorFlow binary is optimized to use available CPU instructions in performance-critical operations.
To enable the following instructions: SSE3 SSE4.1 SSE4.2 AVX AVX2 FMA, in other operations, rebuild TensorFlow with the appropriate compiler flags.
Training model to learn basic math functions...
Epoch 1/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 28s 14ms/step - loss: 1220322.3750 - mae: 391.9616 - val_loss: 11028.9473 - val_mae: 77.8063
Epoch 2/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 15s 12ms/step - loss: 55256.3320 - mae: 128.4832 - val_loss: 7600.9448 - val_mae: 66.2642
Epoch 3/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 15s 12ms/step - loss: 41087.0781 - mae: 111.1826 - val_loss: 8301.5195 - val_mae: 45.4643
Epoch 4/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 18s 14ms/step - loss: 34996.0195 - mae: 97.8401 - val_loss: 7420.1758 - val_mae: 51.7224
Epoch 5/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 14s 11ms/step - loss: 26492.9707 - mae: 82.3841 - val_loss: 2734.6165 - val_mae: 26.0114
Epoch 6/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 14s 11ms/step - loss: 22685.3613 - mae: 73.5714 - val_loss: 2423.6270 - val_mae: 26.0522
Epoch 7/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 18s 9ms/step - loss: 23713.0762 - mae: 72.3049 - val_loss: 2032.2430 - val_mae: 22.1401
Epoch 8/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 22s 10ms/step - loss: 18347.4512 - mae: 64.4018 - val_loss: 3007.8594 - val_mae: 23.2014
Epoch 9/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 11s 9ms/step - loss: 17483.7188 - mae: 62.3223 - val_loss: 1179.5269 - val_mae: 17.1579
Epoch 10/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 11s 9ms/step - loss: 17831.1094 - mae: 62.4792 - val_loss: 4103.6582 - val_mae: 34.3651
Epoch 11/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 12s 10ms/step - loss: 14970.4658 - mae: 58.6620 - val_loss: 2573.0654 - val_mae: 19.8971
Epoch 12/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 14s 11ms/step - loss: 15147.3408 - mae: 58.2772 - val_loss: 1825.7212 - val_mae: 23.7311
Epoch 13/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 12s 9ms/step - loss: 14522.2988 - mae: 57.1352 - val_loss: 3657.9829 - val_mae: 32.5072
Epoch 14/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 10s 8ms/step - loss: 14424.4990 - mae: 56.3531 - val_loss: 2312.0186 - val_mae: 23.2894
Epoch 15/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 10s 8ms/step - loss: 14011.5000 - mae: 55.5623 - val_loss: 887.5632 - val_mae: 13.5718
Epoch 16/100
1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 12s 10ms/step - loss: 12696.7773 - mae: 53.8237 - val_loss: 2218.9004 - val_mae: 20.6361
Epoch 17/100
```

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43 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 20s 9ms/step - loss: 12732.8330 - mae: 53.4589 - val_loss: 2390.7664 -
   val_mae: 20.8952
44 Epoch 18/100
45 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 14s 11ms/step - loss: 12014.8809 - mae: 51.9334 - val_loss: 691.1491 -
   val_mae: 14.0902
46 Epoch 19/100
47 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 11s 9ms/step - loss: 12575.7227 - mae: 52.1256 - val_loss: 4264.6890 -
   val_mae: 28.8245
48 Epoch 20/100
49 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 11s 9ms/step - loss: 11766.0068 - mae: 51.2495 - val_loss: 1902.4117 -
   val_mae: 21.0905
50 Epoch 21/100
51 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 19s 15ms/step - loss: 11016.5479 - mae: 49.3679 - val_loss: 1928.3264 -
   val_mae: 21.4618
52 Epoch 22/100
53 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 23s 17ms/step - loss: 11212.3018 - mae: 49.5476 - val_loss: 1206.5706 -
   val_mae: 17.4160
54 Epoch 23/100
55 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 36s 13ms/step - loss: 11223.5391 - mae: 49.4074 - val_loss: 1020.5683 -
   val_mae: 16.0903
56 Epoch 24/100
57 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 19s 11ms/step - loss: 11018.0078 - mae: 48.6494 - val_loss: 863.9990 -
   val_mae: 14.2327
58 Epoch 25/100
59 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 23s 13ms/step - loss: 11212.8037 - mae: 48.1671 - val_loss: 1096.2585 -
   val_mae: 14.2401
60 Epoch 26/100
61 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 14s 11ms/step - loss: 10294.2930 - mae: 47.1879 - val_loss: 1049.0886 -
   val_mae: 18.0588
62 Epoch 27/100
63 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 17s 14ms/step - loss: 9921.2256 - mae: 46.3484 - val_loss: 2417.3623 -
   val_mae: 20.7230
64 Epoch 28/100
65 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 16s 13ms/step - loss: 10242.0537 - mae: 46.8973 - val_loss: 897.0662 -
   val_mae: 14.9005
66 Epoch 29/100
67 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 16s 13ms/step - loss: 11221.4580 - mae: 48.2393 - val_loss: 1777.2484 -
   val_mae: 20.5812
68 Epoch 30/100
69 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 16s 13ms/step - loss: 9723.2617 - mae: 45.0865 - val_loss: 907.2056 -
   val_mae: 14.4900
70 Epoch 31/100
71 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 14s 11ms/step - loss: 9983.8271 - mae: 46.1650 - val_loss: 1268.5854 -
   val_mae: 15.3526
72 Epoch 32/100
73 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 21s 11ms/step - loss: 10245.5752 - mae: 46.1226 - val_loss: 1835.7728 -
   val_mae: 20.9359
74 Epoch 33/100
75 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 10s 8ms/step - loss: 9585.1572 - mae: 44.6817 - val_loss: 872.6387 -
   val_mae: 15.8069
76 Epoch 34/100
77 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 14s 11ms/step - loss: 9461.3799 - mae: 44.4110 - val_loss: 2742.6790 -
   val_mae: 24.3174
78 Epoch 35/100
79 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 11s 9ms/step - loss: 9539.4209 - mae: 44.2209 - val_loss: 532.5955 -
   val_mae: 12.0186
80 Epoch 36/100
81 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 8s 7ms/step - loss: 9698.9355 - mae: 44.7522 - val_loss: 1041.3322 -
   val_mae: 13.9462
82 Epoch 37/100
83 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 12s 8ms/step - loss: 9798.9893 - mae: 44.8300 - val_loss: 2284.5156 -
   val_mae: 21.7648
84 Epoch 38/100
85 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 3493s 3s/step - loss: 8938.7891 - mae: 43.2196 - val_loss: 947.2135 -
   val_mae: 13.4432
86 Epoch 39/100
87 1250/1250 ▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯▯ 8s 5ms/step - loss: 9473.2695 - mae: 44.0812 - val_loss: 3245.2515 -
```

```
 87 val_mae: 27.8827
 88 Epoch 40/100
 89 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 6s 5ms/step - loss: 9480.0869 - mae: 43.9132 - val_loss: 2390.6443 -
    val_mae: 21.2329
 90 Epoch 41/100
 91 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 6s 5ms/step - loss: 9600.3076 - mae: 43.8209 - val_loss: 1456.8210 -
    val_mae: 18.1498
 92 Epoch 42/100
 93 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 6s 4ms/step - loss: 8954.7139 - mae: 42.6948 - val_loss: 2958.4521 -
    val_mae: 22.7202
 94 Epoch 43/100
 95 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 9037.5674 - mae: 42.4377 - val_loss: 3084.8691 -
    val_mae: 26.5808
 96 Epoch 44/100
 97 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 9450.5781 - mae: 43.6519 - val_loss: 1202.5662 -
    val_mae: 15.8809
 98 Epoch 45/100
 99 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8681.1367 - mae: 42.5885 - val_loss: 1002.2356 -
    val_mae: 14.8815
100 Epoch 46/100
101 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8938.4834 - mae: 42.4926 - val_loss: 1094.9546 -
    val_mae: 14.2643
102 Epoch 47/100
103 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 6s 4ms/step - loss: 8557.3203 - mae: 41.7733 - val_loss: 2826.1899 -
    val_mae: 22.8764
104 Epoch 48/100
105 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8417.1855 - mae: 41.5530 - val_loss: 1626.6167 -
    val_mae: 20.9881
106 Epoch 49/100
107 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8931.1504 - mae: 42.7100 - val_loss: 1607.0502 -
    val_mae: 15.7736
108 Epoch 50/100
109 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8674.3730 - mae: 41.2773 - val_loss: 3765.2952 -
    val_mae: 25.5107
110 Epoch 51/100
111 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8364.5518 - mae: 40.8882 - val_loss: 2736.3813 -
    val_mae: 22.1999
112 Epoch 52/100
113 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8661.2627 - mae: 41.6610 - val_loss: 2130.0366 -
    val_mae: 22.0343
114 Epoch 53/100
115 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 5s 4ms/step - loss: 8064.7515 - mae: 40.5875 - val_loss: 4936.3560 -
    val_mae: 27.4373
116 Epoch 54/100
117 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 7s 6ms/step - loss: 8021.2876 - mae: 40.4047 - val_loss: 1715.9960 -
    val_mae: 21.7717
118 Epoch 55/100
119 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 7ms/step - loss: 8094.7310 - mae: 40.6450 - val_loss: 3954.3779 -
    val_mae: 25.5943
120 Epoch 56/100
121 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 6ms/step - loss: 8275.2393 - mae: 41.0049 - val_loss: 1478.5638 -
    val_mae: 17.2130
122 Epoch 57/100
123 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 6ms/step - loss: 8310.2139 - mae: 41.1818 - val_loss: 2839.7368 -
    val_mae: 24.4483
124 Epoch 58/100
125 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 7s 6ms/step - loss: 7639.8794 - mae: 39.4615 - val_loss: 1217.8403 -
    val_mae: 14.6456
126 Epoch 59/100
127 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 6ms/step - loss: 8392.6797 - mae: 40.5349 - val_loss: 1627.7928 -
    val_mae: 18.2280
128 Epoch 60/100
129 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 7ms/step - loss: 8476.9609 - mae: 41.1221 - val_loss: 3234.0068 -
    val_mae: 23.2701
130 Epoch 61/100
131 1250/1250 ▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪▪ 8s 6ms/step - loss: 8177.3018 - mae: 40.5201 - val_loss: 1485.7935 -
    val_mae: 17.6360
```

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Epoch 62/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 7ms/step - loss: 8464.2383 - mae: 40.8724 - val_loss: 1658.4301 - val_mae: 19.1597
Epoch 63/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 7ms/step - loss: 8082.6470 - mae: 40.0648 - val_loss: 2623.3601 - val_mae: 21.9472
Epoch 64/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 7s 6ms/step - loss: 7723.6807 - mae: 38.8041 - val_loss: 2525.2734 - val_mae: 26.6056
Epoch 65/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7984.1919 - mae: 39.4680 - val_loss: 2310.3391 - val_mae: 21.6687
Epoch 66/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7799.8984 - mae: 39.3358 - val_loss: 3745.7205 - val_mae: 25.7687
Epoch 67/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7905.7734 - mae: 39.6985 - val_loss: 555.7341 - val_mae: 10.9981
Epoch 68/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7924.3149 - mae: 39.7742 - val_loss: 2368.2681 - val_mae: 18.3730
Epoch 69/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 7ms/step - loss: 7778.1914 - mae: 39.4090 - val_loss: 1218.4224 - val_mae: 17.2559
Epoch 70/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 9s 7ms/step - loss: 8191.9258 - mae: 39.9285 - val_loss: 2708.5879 - val_mae: 20.3790
Epoch 71/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 7ms/step - loss: 8440.9805 - mae: 39.4215 - val_loss: 1722.5342 - val_mae: 19.8359
Epoch 72/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7846.4214 - mae: 39.3735 - val_loss: 4577.2144 - val_mae: 30.3980
Epoch 73/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7944.5005 - mae: 39.5995 - val_loss: 1161.2218 - val_mae: 16.4075
Epoch 74/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 9s 7ms/step - loss: 7526.3184 - mae: 38.4061 - val_loss: 2762.4622 - val_mae: 22.6319
Epoch 75/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 7ms/step - loss: 7447.1973 - mae: 38.4210 - val_loss: 2091.0139 - val_mae: 19.3272
Epoch 76/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7325.0630 - mae: 38.4061 - val_loss: 2113.2126 - val_mae: 22.3294
Epoch 77/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7513.7300 - mae: 38.5772 - val_loss: 1092.1089 - val_mae: 16.6301
Epoch 78/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7583.7881 - mae: 38.7593 - val_loss: 1652.3411 - val_mae: 18.5691
Epoch 79/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 9s 7ms/step - loss: 7283.4097 - mae: 37.7710 - val_loss: 1601.5479 - val_mae: 17.7058
Epoch 80/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7378.5908 - mae: 37.8884 - val_loss: 2951.6355 - val_mae: 24.0866
Epoch 81/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7765.5068 - mae: 39.0636 - val_loss: 2394.5100 - val_mae: 20.9296
Epoch 82/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 8s 6ms/step - loss: 7344.1763 - mae: 38.2535 - val_loss: 2427.6780 - val_mae: 22.6585
Epoch 83/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 93s 73ms/step - loss: 7194.5308 - mae: 37.4497 - val_loss: 3037.6599 - val_mae: 24.7151
Epoch 84/100
```

```
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 7s 6ms/step - loss: 7452.0083 - mae: 37.9075 - val_loss: 1859.6340 - val_mae: 19.6203
Epoch 85/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 6s 5ms/step - loss: 7291.6089 - mae: 38.2847 - val_loss: 2323.3647 - val_mae: 22.3687
Epoch 86/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7439.1191 - mae: 37.8106 - val_loss: 1890.8270 - val_mae: 19.3393
Epoch 87/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7314.5620 - mae: 38.1321 - val_loss: 2653.7520 - val_mae: 23.4091
Epoch 88/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7242.6338 - mae: 37.5944 - val_loss: 1304.1011 - val_mae: 17.7968
Epoch 89/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7321.5151 - mae: 37.3533 - val_loss: 1247.8757 - val_mae: 16.9239
Epoch 90/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 6929.6050 - mae: 37.1770 - val_loss: 2011.4674 - val_mae: 19.1230
Epoch 91/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7262.8706 - mae: 37.8280 - val_loss: 1558.9567 - val_mae: 20.9309
Epoch 92/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7263.3306 - mae: 37.5728 - val_loss: 1156.3951 - val_mae: 14.8021
Epoch 93/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 6617.1064 - mae: 36.1060 - val_loss: 3301.4773 - val_mae: 22.5734
Epoch 94/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7010.5942 - mae: 36.7806 - val_loss: 1723.9938 - val_mae: 19.2314
Epoch 95/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 6994.6899 - mae: 36.9870 - val_loss: 1563.1167 - val_mae: 17.5819
Epoch 96/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7034.3535 - mae: 36.5755 - val_loss: 1119.0712 - val_mae: 13.5056
Epoch 97/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7050.0098 - mae: 36.8375 - val_loss: 2307.4290 - val_mae: 21.7707
Epoch 98/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 7060.2100 - mae: 37.0984 - val_loss: 3962.4795 - val_mae: 29.3380
Epoch 99/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 6811.2144 - mae: 36.3351 - val_loss: 3520.4775 - val_mae: 24.0923
Epoch 100/100
1250/1250 ▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰▰ 5s 4ms/step - loss: 6677.3862 - mae: 36.4535 - val_loss: 1749.5533 - val_mae: 17.8610

Validation Loss: 1749.5540
Validation MAE: 17.8610

=== Testing Results ===
Question: 10 + 5
  Actual: 15.00
  Prediction: 22.51
  Error: 7.5073

Question: 20 / 4
  Actual: 5.00
  Prediction: 0.95
  Error: 4.0488

Question: 6 * 7
  Actual: 42.00
```

```
  Prediction: 93.82
  Error: 51.8212

Question: 50 - 10
  Actual: 40.00
  Prediction: 37.90
  Error: 2.0997


Process finished with exit code 0

```