

Answer Key – Rig Math

Page 5 – Addition

1. 197
2. 1,213.83
3. 272,166
4. 11,000,055.674

Subtraction

1. 48.13
2. 195,706
3. .3295
4. 2.5173

Page 6 – Multiplication

1. 192.5
2. 443,066.4
3. 69.8651
4. 56.7

Division

1. 1.451
2. 1.5361
3. 562.0244
4. .95

Page 9 – Converting Fractions to Decimals

1. .5
2. .375
3. .625

Page 10 – Exponentiation – Squaring

1. 12.25
2. 150.0625
3. 20.25
4. 15,630.0004

Page 11 – Exponentiation – Powers Greater than 2

1. 42.875
2. 1.7555×10
3. 1,518,540.528
4. 275,854.74
5. 6.43

Page 12 – Exponentiation – Fractional Exponents

1. 30.95
2. 1.43
3. 4.49
4. 88,069.37
5. .39

Page 13 – Obtaining the Square Root

1. 8.86
2. 2.96
3. 2,994.23
4. 3.58
5. 3,290.83

Page 14 – Parentheses

1. 435
2. 988.24
3. .74
4. .02

Page 15 – Parentheses

1. 229.59
2. 1.63
3. 117.32
4. 16.86

Page 16 – Accurate DC Weight

188.03 #/ft	16,923 lbs
104.95 #/ft	18,890 lbs
136.31 #/ft	36,804 lbs
60.73 #/ft	21,863 lbs

Page 17 – Spiraled Collars

180.51 #/ft	16,246 lbs
100.75 #/ft	18,135 lbs
130.86 #/ft	35,332 lbs
58.30 #/ft	20,989 lbs

Page 18 – Buoyancy

- .8654 BF
- .8593 BF
- .7890 BF
- .7263 BF

Page 19 – How Buoyancy Affects the Weight of the Drill String

- 1. 108,751 #
48,937 #
11,016 #
168,704 lbs.
- 2. 320,903 #
48,019 #
26,497 #
395,419 lbs.

Page 20

- 3. 177,371 #
44,178 #
70,091 #
11,692 #
303,332 lbs.
- 4. 85,099 #
200,327 #
54,653 #
24,479 #
8,727 #
373,285 lbs.

Page 21 – Angle & Buoyancy Affects

- 1. 22,662 #
25,684 #
.7890 BF
48,346 lbs.
- 2. 2,020 #
14,190 #
.7554 BF
16,210 lbs.

Page 25

- 1. 501,088 #
- 2. 595,005 #
- 3. 561,917 #

Page 28 – Rig Math

- 553,834 #
- .7813 BF
- 205,985 #
- 26,802 #
- 20,729 #
- 253,516 #
- 315,516 #
- 238,318 #

Page 30 – HP Calculations

- 7350 psi
- 19,260 psi
- 4203 psi
- 7273 psi

- 182 psi
- 200 psi
- 173 psi
- 1800 psi

- 3518 psi
- 87 psi
- 4185 psi
- 5357 psi

Page 31 – HP Calculations

- 1. 82 psi 1028 psi
- 2. 151 psi 186 psi
- 3. 127 psi 2229 psi

Page 32 – HP Calculations

- 9551 psi
- 172 psi
- 9723 psi

Page 33

- 4423 psi Overbalance = 1303 psi
- 5971 psi Overbalance = 1421 psi
- 7272 psi Overbalance = 117 psi

Page 35 – Drillstring Volume

195.38 bbl
5.68 bbl
1.77 bbl
Annular Volume
9.33 bbl
29.84 bbl
257.04 bbl
264.18 bbl

Page 40

240.53 bbl
7.08 bbl
1.57 bbl
249.18 bbl

4.07 bbl
37.18 bbl
288.53 bbl
364.07 bbl
693.85 bbl

.0739 bbl/stk
3372 strokes
160 minutes (Surf to Surf)

Page 42

1. 25 spm
2. 63 spm
3. 118 spm
4. 96 spm

Page 44

1. 5.26 bpm
2. 3.22 bpm
3. 1.33 bpm
4. 2.04 bpm

Page 46

1. 363.32 bbls
2. 769.39 bbls
3. 74.8 bbls

Page 47

2.97 bbl/ inch
0.37 inches/ bbl

Page 48 – Volume Calculations

1. 94.56 bbl
2. 17.91 bbl

Page 49 – Volume Calculations

0.75 bbl/ inch
1.34 inches/ bbl