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Instructor's Solution Manual
to accompany

AUTOMOTIVE MATHEMATICS

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10 9 8 7 6 5 4 3 2 1

ISBN 0-13-227100-1

Automotive Mathematics, 1st Edition

Answers to Even-Numbered Practice Problems

Chapter 1

Our Number System

- 2) One Hundred Three 4) Three Thousand Nine Hundred Twenty
6) Three Hundred Forty-Eight Thousand Two Hundred Eleven
8) 340 10) 10,211 12) 212,620

Addition of Whole Numbers

- 2) 143 4) 2,901 6) 95 8) 1,004 10) 13,996 12) 908
14) 1,870 16) 19 amps 18) 639 inches 20) 1731 miles
22) 687 grams 24) \$20,147

Subtraction of Whole Numbers

- 2) 26 4) 875 6) 383 8) 1,585 10) 1,045
12) 217 14) 8 psi 16) \$836 18) 3,010 lb 20) a) 8 days b) 272 miles
22) 49,012 miles 24) Cylinder 4 is too low. $141 \text{ psi} - 104 \text{ psi} = 37 \text{ psi}$

Multiplication of Whole Numbers

- 2) 75 4) 1264 6) 77,025 8) 935,714 10) 3,712,715
12) 5,526 14) 350,000 16) 8,400,000 18) 495 mi 20) 800 km
22) \$24,480 24) a) \$640 b) \$10 c) \$630 d) \$720 e) \$45 f) \$675
26) 390 miles 28) 14,000 Ω

Division of Whole Numbers

- 2) 32 4) 17 r2 6) 11 8) 7 10) 21 r6 12) 97
14) 169 r13 16) 8 18) 8,000 20) 3 cans 22) 14 kilometers per liter
24) \$13 per hour 26) \$170 per month 28) 18 amps

Exponents

- 2) 7^9 4) 100^4 6) $1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1 \times 1$
8) $333 \times 333 \times 333$ 10) $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$ 12) 64
14) 100,000 16) 4,913 18) 2,304 20) 3,359,232 22) 144 square yards

Order of Operations

- 2) 11 4) 18 6) 100 8) 4 10) 144 12) 8
14) 4 16) $\frac{5}{9}$ 18) $\frac{8}{9}$

Chapter 2

Reading and Writing Decimal Numbers

- 2) Twelve and seventy-nine hundredths
- 4) Nine and three hundred seventy-one thousandths
- 6) Eight and four thousand three hundred six ten-thousandths
- 8) Twenty one and six thousand two hundred seventy-three ten-thousandths
- 10) 15.94 12) 6.344 14) 1.001 2 16) 0.250 0

Rounding Decimal Numbers

- 2) 13.67 4) 138.673 6) 46.45 8) 0.000

Adding and Subtracting Decimal Numbers

- 2) 78.491 4) 25.990 6) 20.9511 8) 164.05 10) 33.2
- 12) 67.129 14) 46.472 16) 0.177 18) 0.101 311
- 20) 262.7 22) 62.342 24) 6.187 26) \$224.50 28) 4.9 volts
- 30) \$60.66 32) 4.1270 inches 34) \$390.89 36) 14,774.4 miles
- 38) 0.004 inches 40) 0.035 inches 42) \$153.96 44) \$19.27

Reading a Micrometer

- 2) 0.308 in 4) 0.365 in 6) 0.513 in 8) 0.255 in 10) 0.021 in 12) 21.79 mm
- 14) 19.24 mm 16) 3.50 mm 18) 9.98 mm 20) 9.99 mm

Multiplication of Decimal Numbers

- 2) 358.422 4) 2.140 008 6) 319.8 8) 190.18 10) 18.774
12) 58.311 14) 29.787 6 16) 13.788 18 18) 50.009 25
20) 328.758 596 4 22) 3.757 24) 14.377 26) \$516.36
28) a) \$733.60 b) 6.1 hr c) \$27.51 d) \$167.81 e) \$901.41
30) 232.75 mi 32) 7,382.07 lb·ft 34) \$518.48 36) \$18.60
38) a) \$0.55 b) \$6.60 40) \$95.93 42) \$524.48

Division of Decimal Numbers

- 2) 3.7 4) 0.68 6) 8.9 8) 5.7 10) 38 12) 6.7
14) 32 16) 7.5 18) 3.91 20) 8.6 22) 5.4 24) 9.22
26) 2.18 28) 3.21 30) 3.10 32) \$2.39 34) \$0.71 36) \$2.16
38) a) 220 b) \$2.72 c) \$0.68 40) 26.8 MPG
42) a) 19.6 MPG b) 3.9 MPG 44) 48.2 MPH 46) \$12.32

Square Roots

- 2) 7 4) 2 6) 12 8) 7.550 10) 10.344 12) 19.925
14) 49.074 16) 31.316 18) 50.925

Chapter 3

Equivalent Fractions

2) Improper fraction 4) Improper fraction 6) Mixed number

- 8) $2\frac{1}{3}$ 10) $2\frac{1}{6}$ 12) $3\frac{1}{10}$ 14) $4\frac{1}{2}$ 16) $6\frac{2}{3}$ 18) $1\frac{1}{4}$
- 20) 4 22) $\frac{13}{2}$ 24) $\frac{44}{9}$ 26) $\frac{43}{4}$ 28) $\frac{59}{11}$ 30) $\frac{100}{3}$
- 32) $\frac{75}{29}$ 34) $\frac{21}{2}$ 36) $\frac{1007}{32}$ 38) $\frac{2}{12}$ 40) $\frac{15}{50}$ 42) $\frac{8}{12}$
- 44) $\frac{12}{16}$ 46) $4\frac{12}{54}$ 48) $3\frac{96}{104}$ 50) $\frac{2}{5}$ 52) $\frac{5}{6}$ 54) $\frac{2}{3}$
- 56) $\frac{2}{5}$ 58) $4\frac{5}{7}$ 60) $13\frac{1}{4}$ 62) $1\frac{2}{3}$

Common Denominators

- 2) $\frac{1}{6}, \frac{4}{6}$ 4) $\frac{10}{12}, \frac{11}{12}$ 6) $\frac{21}{35}, \frac{20}{35}$ 8) $\frac{18}{60}, \frac{25}{60}$ 10) $\frac{10}{20}, \frac{15}{20}, \frac{8}{20}$
- 12) $\frac{3}{96}, \frac{42}{96}, \frac{74}{96}$ 14) $\frac{2}{3}, \frac{5}{6}$ 16) $\frac{4}{7}, \frac{3}{4}$ 18) $\frac{5}{8}, \frac{3}{4}, \frac{4}{5}$ 20) $\frac{9}{32}, \frac{5}{16}, \frac{3}{8}$

Adding Fractions

- 2) $\frac{5}{8}$ 4) $\frac{7}{8}$ 6) $1\frac{7}{18}$ 8) $7\frac{11}{12}$ 10) $10\frac{7}{24}$ 12) $7\frac{5}{42}$
- 14) $38\frac{5}{36}$ 16) $15\frac{3}{4}$ 18) $98\frac{61}{120}$ 20) $7\frac{19}{20}$ 22) $38\frac{1}{2}$ 24) $\frac{5}{8}$ in.
- 26) $4\frac{7}{16}$ in.

Subtracting Fractions

- 2) $\frac{4}{10}$ 4) $2\frac{1}{6}$ 6) $\frac{5}{7}$ 8) $8\frac{2}{3}$ 10) $4\frac{13}{15}$ 12) $2\frac{15}{28}$
- 14) $\frac{17}{60}$ 16) $\frac{3}{4}$ qt 18) $4\frac{1}{4}$ qt 20) $\frac{11}{16}$ in. 22) $3\frac{1}{4}$ in.

Multiplying Fractions

- 2) $\frac{8}{15}$ 4) $\frac{21}{44}$ 6) $\frac{1}{28}$ 8) $4\frac{4}{9}$ 10) $2\frac{1}{3}$ 12) $2\frac{2}{3}$
- 14) $3\frac{5}{6}$ 16) $18\frac{3}{16}$ 18) $40\frac{2}{135}$ 20) 26 ft 22) $58\frac{1}{3}$ lb
- 24) a) $2\frac{1}{2}$ qt b) $1\frac{1}{4}$ qt 26) a) $\frac{1}{16}$ in. b) $\frac{3}{32}$ in. c) $\frac{1}{6}$ in.

Dividing Fractions

- 2) $\frac{24}{35}$ 4) $\frac{11}{12}$ 6) $\frac{2}{5}$ 8) $\frac{17}{28}$ 10) 2 12) $1\frac{47}{78}$
- 14) $2\frac{3}{196}$ 16) $6\frac{2}{3}$ (Six whole pieces can be cut from a 50-foot roll.) 18) $33\frac{7}{8}$ in.
- 20) $1\frac{1}{2}$ turns 22) a) 4 in. b) 5 cm 24) $3\frac{3}{4}$ in. 26) 4 28) $11\frac{5}{16}$ in.

Converting Fractions to Decimals

- 2) 0.375 4) 0.65 6) 0.857 8) 1.167 10) 8.56 12) 5.353
- 14) 5.093 75 in. 16) 12.311 18) 13.815 20) 9.705