

10A

- 1) done
- 2) done
- 3) $6^2 + 8^2 = H^2$
 $36 + 64 = H^2$
 $100 \text{ ft} = H^2$
 $10 \text{ ft} = H$
- 4) $16^2 + L^2 = 20^2$
 $256 + L^2 = 400$
 $L^2 = 400 - 256 = 144$
 $L = 12 \text{ mi.}$
- 5) done
- 6) $8^2 + 15^2 = 17^2$
 $64 + 225 = 289$
 $289 = 289$; yes
- 7) $10^2 + 24^2 = 26^2$
 $100 + 576 = 676$
 $676 = 676$; yes
- 8) $4^2 + 5^2 = 6^2$
 $16 + 25 = 36$
 $41 \neq 36$; no
- 9) $12^2 + 9^2 = H^2$
 $144 + 81 = H^2$
 $225 = H^2$
 $15 \text{ ft} = H$
- 10) $9^2 + 12^2 = 16^2$
 $81 + 144 = 256$
 $225 \neq 256$; no

10B

- 1) $9^2 + 12^2 = H^2$
 $81 + 144 = H^2$
 $225 = H^2$ 15 in. = H
- 2) $L^2 + 6^2 = 10^2$
 $L^2 + 36 = 100$
 $L^2 = 100 - 36 = 64$
 $L = 8$ feet
- 3) $15^2 + 36^2 = 39^2$
 $225 + 1296 = 1521$
 $1521 = 1521$; yes
- 4) $15^2 + 20^2 = 25^2$
 $225 + 400 = 625$
 $625 = 625$; yes
- 5) $5^2 + 10^2 = 12^2$
 $25 + 100 = 144$
 $125 \neq 144$; no
- 6) $3^2 + 4^2 = 8^2$
 $9 + 16 = 64$
 $25 \neq 64$; no

- 7) $16^2 + 30^2 = 34^2$
 $256 + 900 = 1156$
 $1156 = 1156$; yes
- 8) $1^2 + 3^2 = 4^2$
 $1 + 9 = 16$
 $10 \neq 16$; no
- 9) $3^2 + 4^2 = H^2$
 $9 + 16 = H^2$
 $25 = H^2$
 $5 \text{ ft.} = H$
- 10) $4^2 + 5^2 = 6^2$
 $16 + 25 = 36$
 $41 \neq 36$; no

10C

- 1) $5^2 + 12^2 = H^2$
 $25 + 144 = H^2$
 $169 = H^2$ 13 ft. = H
- 2) $16^2 + 12^2 = H^2$
 $256 + 144 = H^2$
 $400 = H^2$ 20 yds. = H
- 3) $20^2 + 48^2 = 52^2$
 $400 + 2304 = 2704$
 $2704 = 2704$; yes
- 4) $4^2 + 8^2 = 16^2$
 $16 + 64 = 256$
 $80 \neq 256$; no
- 5) $7^2 + 24^2 = 25^2$
 $49 + 576 = 625$
 $625 = 625$; yes
- 6) $2^2 + 3^2 = 6^2$
 $4 + 9 = 36$
 $13 \neq 36$; no
- 7) $10^2 + 12^2 = 15^2$
 $100 + 144 = 225$
 $244 \neq 225$; no
- 8) $18^2 + 24^2 = 30^2$
 $324 + 576 = 900$
 $900 = 900$; yes
- 9) $6^2 + 8^2 = H^2$
 $36 + 64 = H^2$
 $100 = H^2$
 $10 \text{ in.} = H$
- 10) $5^2 + 5^2 = 5^2$
 $25 + 25 = 25$
 $50 \neq 25$; no

10D

- 1) $3^2 + 4^2 = H^2$
 $9 + 16 = H^2$
 $25 = H^2$ 5 in. = H
- 2) $3^2 + 4^2 = 10^2$
 $9 + 16 = 100$
 $25 \neq 100$; no
- 3) $X - 15 = 12$
 $X = 12 + 15$
 $X = 27$
- 4) $(27) - 15 = 12$
 $12 = 12$
- 5) $4X + 3 = 3X - 12$
 $4X - 3X = -12 - 3$
 $X = -15$
- 6) $4(-15) + 3 = 3(-15) - 12$
 $-60 + 3 = -45 - 12$
 $-57 = -57$
- 7) ± 4
- 8) $\pm X$
- 9) $-2 \times -2 \times -2 = -8$
- 10) $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{16}$
- 11) $6 \times \frac{1}{10^1} + 5 \times \frac{1}{10^2} + 8 \times \frac{1}{10^3}$

- 12) $1 \times 10^3 + 4 \times 10^2 + 8 \times 10^1 + 2 \times 10^0$
- 13) $\frac{1}{2} \times \frac{2}{5} = \frac{2}{5}$
- 14) $\frac{2}{3} \times \frac{1}{4} = \frac{1}{12}$
- 15) $\frac{2}{3} \times \frac{1}{10} = \frac{1}{15}$
- 16) $\frac{3}{6} + \frac{1}{2} = \frac{3}{6} + \frac{3}{6} = \frac{4}{6} = \frac{2}{3} = 1$
- 17) $\frac{5}{8} + \frac{2}{3} = \frac{5}{8} + \frac{2}{3} = \frac{15}{24} + \frac{16}{24} = \frac{31}{24}$
- 18) $\frac{1}{2} \div \frac{1}{4} = \frac{1}{2} \times \frac{4}{1} = 2$
- 19) $\frac{2}{3} + \frac{1}{3} = \frac{2}{3} + \frac{1}{3} = \frac{3}{3} = 1$
- 20) $9^2 + 12^2 = 15^2$
 $81 + 144 = 225$
 $225 = 225$; yes

10E

- 1) $5^2 + L^2 = 13^2$
 $25 + L^2 = 169$
 $L^2 = 169 - 25$
 $L^2 = 144$
 $L = 12$ ft.
- 2) $21^2 + 28^2 = 35^2$
 $441 + 784 = 1225$
 $1225 = 1225$; yes
- 3) $X + 5 = 17$
 $X = 17 - 5$
 $X = 12$
- 4) $(12) + 5 = 17$
 $17 = 17$
- 5) $-B + 9 = -2B + 1$
 $-B + 2B = 1 - 9$
 $B = -8$
- 6) $-(-8) + 9 = -2(-8) + 1$
 $17 = 16 + 1$
 $17 = 17$
- 7) ± 10
- 8) -36
- 9) $(-5) \times (-5) = 25$
- 10) $\pm \frac{2}{3}$
- 11) 2,700.051
- 12) .963
- 13) $\frac{4}{5} \times \frac{2}{12} = \frac{2}{15}$
- 14) $\frac{1}{8} \times \frac{2}{7} = \frac{2}{56} = \frac{1}{28}$
- 15) $\frac{2}{4} \times \frac{2}{3} = \frac{4}{12} = \frac{1}{3}$
- 16) $\frac{1}{2} + \frac{1}{4} = \frac{2}{4} + \frac{1}{4} = \frac{3}{4}$
- 17) $\frac{6}{8} \div \frac{1}{4} = \frac{6}{8} \times \frac{4}{1} = \frac{24}{8} = 3$
- 18) $\frac{5}{7} \div \frac{1}{7} = \frac{5}{7} \times \frac{7}{1} = 5$
- 19) $X + \$100 = \500
 $X = \$500 - \$100 = \$400$
- 20) $7^2 + 8^2 = 9^2$
 $49 + 64 = 81$
 $113 \neq 81$; no

10F

- 1) $8^2 + 6^2 = H^2$
 $64 + 36 = H^2$
 $100 = H^2$ 10 ft = H
- 2) $5^2 + 10^2 = 100^2$
 $25 + 100 = 10,000$
 $125 \neq 10,000$; no
- 3) $A - 3 = 19$
 $A = 19 + 3$
 $A = 22$
- 4) $(22) - 3 = 19$
 $19 = 19$
- 5) $7X - 5 = 6X - 10$
 $7X - 6X = -10 + 5$
 $X = -5$
- 6) $7(-5) - 5 = 6(-5) - 10$
 $-35 - 5 = -30 - 10$
 $-40 = -40$
- 7) ± 7
- 8) 81
- 9) $4 \times 4 = 16$
- 10) $\pm \frac{3}{5}$

- 11) $\frac{2}{7} + \frac{4}{8} = \frac{16}{56} + \frac{28}{56} = \frac{44}{56} = \frac{11}{14}$
- 12) $\frac{1}{4} + \frac{5}{9} = \frac{9}{36} + \frac{20}{36} = \frac{29}{36}$
- 13) $\frac{4}{5} - \frac{1}{2} = \frac{8}{10} - \frac{5}{10} = \frac{3}{10}$
- 14) $\frac{3}{4} \div \frac{1}{7} = \frac{3}{4} \times \frac{7}{1} = \frac{21}{4}$
- 15) $\frac{3}{5} \div \frac{1}{8} = \frac{3}{5} \times \frac{8}{1} = \frac{24}{5}$
- 16) $\frac{7}{10} \div \frac{1}{9} = \frac{7}{10} \times \frac{9}{1} = \frac{63}{10}$
- 17) 480
- 18) $6N - 8 = 5N + 2$
 $6N - 5N = 2 + 8$
 $N = 10$
- 19) $\frac{3}{4} \div \frac{1}{4} = \frac{3 \div 1}{1} = 3$
- 20) $12^2 + 16^2 = H^2$
 $144 + 256 = H^2$
 $400 = H^2$
 $20 \text{ ft.} = H$

11A

- 1) done
- 2) done
- 3) $7 - 3 = 3 - 7$
 $4 = -4$ false
- 4) $7 \times 9 = 9 \times 7$
 $63 = 63$ true
- 5) $(2 + 3) + 8 = 2 + (3 + 8)$
 $5 + 8 = 2 + 11$
 $13 = 13$ true
- 6) $(4 \times 5) \times 6 = 4 \times (5 \times 6)$
 $20 \times 6 = 4 \times 30$
 $120 = 120$ true
- 7) $(10 - 4) - 1 = 10 - (4 - 1)$
 $6 - 1 = 10 - 3$
 $5 = 7$ false
- 8) $(9 \div 3) \div 3 = 9 \div (3 \div 3)$
 $3 \div 3 = 9 \div 1$
 $1 = 9$ false
- 9) done
- 10) $7 + 5 = 5 + 7$
- 11) $X + 2Y = 2Y + X$
- 12) $20 \times 13 = 13 \times 20$
- 13) done
- 14) $9 \times (5 \times 2) = (9 \times 5) \times 2$
- 15) $3B + (6B + 4B) = (3B + 6B) + 4B$
- 16) $(3 \times R) \times 5 = 3 \times (R \times 5)$
- 17) addition; multiplication
- 18) subtraction; division
- 19) addition; multiplication
- 20) subtraction; division

11B

- 1) $10 + 13 = 13 + 10$
 $23 = 23$ true
- 2) $16 \div 2 = 2 \div 16$
 $8 = 2/16$ false
- 3) $8 \times 4 = 4 \times 8$
 $32 = 32$ true
- 4) $12 - 5 = 5 - 12$
 $7 = -7$ false
- 5) $(3 \times 4) \times 5 = 3 \times (4 \times 5)$
 $12 \times 5 = 3 \times 20$
 60×60 true
- 6) $(12 \div 6) \div 2 = 12 \div (6 \div 2)$
 $2 \div 2 = 12 \div 3$
 $1 = 4$ false
- 7) done
- 8) $2A + B - A + 3B =$
 $2A - A + B + 3B =$
 $A + 4B$
- 9) $5Q + 3C - C + Q + 4Q - 5C =$
 $5Q + Q + 4Q + 3C - C - 5C =$
 $10Q - 3C$
- 10) $2X + 2 - X + 2X =$
 $2X - X + 2X + 2 =$
 $3X + 2$
- 11) $3Y - 1 + 2Y - 1 - 4Y =$
 $3Y + 2Y - 4Y - 1 - 1 =$
 $Y - 2$
- 12) $5A - 6B - 3B + 10A - 8 =$
 $5A + 10A - 6B - 3B - 8 =$
 $15A - 9B - 8$
- 13) false
- 14) true
- 15) false
- 16) true
- 17) $5 \times 3 = 3 \times 5$; same number
- 18) $X \cdot Y = Y \cdot X$