

20A

- 1) done
- 2) $\frac{X}{24} = \frac{18}{36}$
 $X = 12$
- 3) $B = 27$
- 4) $D = 12$
- 5) $Y = 40$
- 6) $G = 8$
- 7) $Q = 30$
- 8) $F = 6$
- 9) $V = 90$
- 10) $R = 18$

20B

- 1) $A = 56$
- 2) $X = 10$
- 3) $B = 100$
- 4) $D = 40$
- 5) $Y = 45$
- 6) $G = 35$
- 7) $Q = 35$
- 8) $F = 34$
- 9) $V = 28$
- 10) $A = 27$

20C

- 1) $A = 27$
- 2) $X = 5$
- 3) $B = 17$
- 4) $D = 24$
- 5) $Y = 33$
- 6) $G = 18$
- 7) $Q = 88$
- 8) $F = 45$
- 9) $V = 22$
- 10) $A = 4$

20D

- 1) $X = 2$
- 2) $E = 12$
- 3) $Y = 9$
- 4) $B = 8$
- 5) $G = 6$
- 6) $.28$
- 7) $.49$
- 8) $.225$
- 9) $.125$
- 10) $\frac{41}{50}$
- 11) $\frac{111}{250}$
- 12) $\frac{4}{25}$
- 13) $\frac{21}{200}$
- 14) 36.7°C (37°)
- 15) 592 sq. in.
- 16) $1.00 - .63 = .37$
- 17) $1 \times 10^3 + 6 \times 10^2 + 7 \times 10^1 +$
 $8 \times 10^0 + 3 \times \frac{1}{10^1} + 9 \times \frac{1}{10^2}$
- 18) $2(B + 2) = 42$
 $2B + 4 = 42$
 $2B = 42 - 4$
 $2B = 38$
 $B = 19 \text{ in.}$

20E

- 1) $X = 8$
- 2) $R = 9$
- 3) $Y = 54$
- 4) $B = 7$
- 5) $G = 35$
- 6) $.875$
- 7) $.743$
- 8) $\frac{23}{200}$
- 9) $\frac{2}{25}$
- 10) $2W - 6 = |-66|$
 $2W = 66 + 6$
 $2W = 72$
 $W = 36$
- 11) $2(36) - 6 = |-66|$
 $72 - 6 = 66$
 $66 = 66$
- 12) $(7 + 1)^2 + 4 + 7 \cdot 3 - X = 25 + X$
 $8^2 + 4 + 21 - X = 25 + X$
 $64 + 4 + 21 - X = 25 + X$
 $16 + 21 - X = 25 + X$
 $16 + 21 - 25 = 2X$
 $12 = 2X$
 $6 = X$

- 13) $(7 + 1)^2 \div 4 + 7 \cdot 3 - (6) = 25 + (6)$
 $(8)^2 \div 4 + 21 - 6 = 31$
 $64 \div 4 + 21 - 6 = 31$
 $16 + 21 - 6 = 31$
 $31 = 31$
- 14) $10^2 + 15^2 = 20^2$
 $100 + 225 = 400$
 $325 \neq 400$; no
- 15) 75.2°F ; no
- 16) $\frac{1}{2}$
- 17) $2(16 \times 8) + 2(22 \times 8) =$
 $2(128) + 2(176) =$
 $256 + 352 = 608 \text{ sq. ft.}$
2 gallons needed
- 18) $2(16 \times 22) = 2(352) = 704 \text{ sq. ft.}$
2 gallons needed
- 19) $60 \div 3 = 20$; $20 \times 2 =$
40 hrs. worked, so 20 left
- 20) $95 \div .05 = 1,900$

20F

- 1) $X = 8$
- 2) $R = 7$
- 3) $Y = 56$
- 4) $B = 7$
- 5) $G = 10$
- 6) $.625$
- 7) $.08$
- 8) $\frac{7}{25}$
- 9) $\frac{24}{25}$
- 10) $-2X - X + 12 = X - |-3 \cdot 4|$
 $-3X + 12 = X - 12$
 $12 + 12 = X + 3X$
 $24 = 4X$
 $6 = X$
- 11) $-2(6) - (6) + 12 = (6) - |-3 \cdot 4|$
 $-12 - 6 + 12 = 6 - |-12|$
 $-6 = 6 - 12$
 $-6 = -6$

- 12) $-(6+7)^2 + (10+5)^2 = 5M+1$
 $-(13)^2 + 15^2 = 5M+1$
 $-169 + 225 = 5M+1$
 $56 = 5M+1$
 $55 = 5M$
 $11 = M$
- 13) $-(6+7)^2 + (10+5)^2 = 5(11) + 1$
 $-(13)^2 + (15)^2 = 55 + 1$
 $-169 + 225 = 56$
 $56 = 56$
- 14) 11.72 in.
- 15) $10\frac{3}{6} - 5\frac{1}{6} = 5\frac{2}{6} = 5\frac{1}{3}$ yrs.
- 16) $\frac{3}{8} \times \frac{1}{2} = \frac{3}{16}$
- 17) 32°F
- 18) \$1,200
- 19) $\$1,200 \div 5 = \240 ;
 $\$240 \times 3 = \720
- 20) $2A + 3 - 15 = A$
 $2A - 12 = A$
 $2A - A = 12$
 $A = 12$

21A

- 1) done
- 2) 3, 6, 9, 12, 15, 18, 21, 24, 27, 30
 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
 LCM = 15
- 3) 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
 LCM = 20
- 4) done
- 5) $12 = 2 \times 2 \times 3$

```

      12
     / \
    2   6
       / \
      2  3
    
```
- 6) $15 = 3 \times 5$

```

      15
     / \
    3   5
    
```
- 7) $8 = 2 \times 2 \times 2$

```

      8
     / \
    2   4
       / \
      2  2
    
```
- 8) done
- 9) $2 \times 2 \times 3 = 12$; $3 \times 5 = 15$
 LCM = $2 \times 2 \times 3 \times 5 = 60$
- 10) $2 \times 2 \times 2 = 8$; $2 \times 3 \times 3 = 18$
 LCM = $2 \times 2 \times 2 \times 3 \times 3 = 72$
- 11) $2 \times 2 \times 2 = 8$; $3 \times 5 = 15$
 LCM = $2 \times 2 \times 2 \times 3 \times 5 = 120$
- 12) $1 \times 5 = 5$; $2 \times 2 \times 2 = 8$
 LCM = $2 \times 2 \times 2 \times 5 = 40$
- 13) $2 \times 2 = 4$; $3 \times 3 = 9$
 LCM = $2 \times 2 \times 3 \times 3 = 36$
- 14) $1 \times 3 = 3$; $2 \times 2 = 4$
 LCM = $2 \times 2 \times 3 = 12$
- 15) $8 = 2 \times 2 \times 2$; $12 = 2 \times 2 \times 3$
 LCM = $2 \times 2 \times 2 \times 3 = 24$

21B

- 1) 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
8, 16, 24, 32, 40, 48, 56, 64, 72, 80
 LCM = 8
- 2) 6, 12, 18, 24, 30, 36, 42, 48, 54, 60
 10, 20, 30, 40, 50, 60, 70, 80, 90, 100
 LCM = 30
- 3) 4, 8, 12, 16, 20, 24, 28, 32, 36, 40
 5, 10, 15, 20, 25, 30, 35, 40, 45, 50
 LCM = 20
- 4) $24 = 2 \times 2 \times 2 \times 3$

```

      24
     / \
    2   12
       / \
      2  6
         / \
        2  3
    
```
- 5) $64 = 2 \times 2 \times 2 \times 2 \times 2 \times 2$

```

      64
     / \
    2   32
       / \
      2  16
         / \
        2  8
           / \
          2  4
             / \
            2  2
    
```
- 6) $32 = 2 \times 2 \times 2 \times 2 \times 2$

```

      32
     / \
    2   16
       / \
      2  8
         / \
        2  4
           / \
          2  2
    
```
- 7) $20 = 2 \times 2 \times 5$

```

      20
     / \
    2   10
       / \
      2  5
    
```

```

      8
     / \
    2   4
       / \
      2  2
    
```
- 8) $2 \times 2 \times 5 = 20$; $2 \times 2 \times 2 \times 3 = 24$
 LCM = $2 \times 2 \times 2 \times 3 \times 5 = 120$
- 9) $2 \times 2 \times 5 = 20$; $2 \times 2 \times 2 \times 2 \times 2 = 32$
 LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 5 = 160$
- 10) $2 \times 2 \times 2 \times 3 = 24$; $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$
 LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 3 = 192$
- 11) $2 \times 2 \times 2 \times 2 \times 2 = 32$; $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$
 LCM = $2 \times 2 \times 2 \times 2 \times 2 \times 2 = 64$
- 12) $2 \times 3 = 6$; $2 \times 2 \times 3 = 12$
 LCM = $2 \times 2 \times 3 = 12$
- 13) $1 \times 5 = 5$; $1 \times 7 = 7$; LCM = $5 \times 7 = 35$
- 14) $3 \times 3 = 9$; $2 \times 2 \times 3 = 12$
 LCM = $2 \times 2 \times 3 \times 3 = 36$
- 15) $3 \times 1 = 3$; $3 \times 5 = 15$; LCM = $3 \times 5 = 15$