

17D

1) $N, N+2, N+4$

2) $4(N+4) + 1 = 3N + 2(N+2)$

3) $4N + 16 + 1 = 3N + 2N + 4$
 $17 - 4 = 5N - 4N, N = 13$
13, 15, 17

4) $N, N+1, N+2$

5) $3N - 5(N+1) = -1$

6) $3N - 5N - 5 = -1$
 $-2N = 4, N = -2$
-2, -1, 0

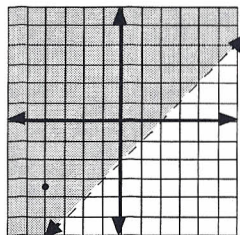
7) $.05N + .10D = 1.10, N + D = 15$

$$\begin{array}{r} 5N + 10D = 110 \\ -5N - 5D = -75 \\ \hline 5D = 35, D = 7 \end{array}$$

$$\begin{array}{l} N + (7) = 15 \\ N = 8 \end{array}$$

$$\begin{array}{l} .05(8) + .10(7) = 1.10 \\ .40 + .70 = 1.10 \checkmark \end{array}$$

8) $Y > X - 2$



9) see graph

10) yes

11) $5Y + 6X = -19$
 $-5Y - 3X = 22$
 $3X = 3$
 $X = 1$

$$\begin{array}{l} 5Y + 6(1) = -19 \\ 5Y = -25 \\ Y = -5 \end{array}$$

12) $5Y + 6X = -19 \Rightarrow Y = -6/5 X - 19/5$
 $(1) = 5/6(-4) + b, b = 13/3$
 $Y = 5/6 X + 13/3$ or $5X - 6Y = -26$

13) 24

14) $2N - 6 + 8N = 4$

15) $10N = 10, N = 1$

16) $3(1) - (1)^2 + 13 - 4(1) = 3 - 1 + 13 - 4 = 2 + 9 = 11$

17) $1/6 + 3/4 = 2/12 + 9/12 = 11/12$

18) $.13 \times 180 = 23.4$

19) $2A = 36, A = 18$

20) $3 \times 3 \times 3 \times 5$

17E

1) $N, N+2, N+4$

2) $5N + 3(N+4) = 7(N+2) + 10$

3) $5N + 3N + 12 = 7N + 14 + 10$
 $8N - 7N = 24 - 12, N = 12$
12, 14, 16

4) $N, N+1, N+2$

5) $7(N+2) - 5(N+1) = 4(N) + 1$

6) $7N + 14 - 5N - 5 = 4N + 1$
 $2N + 9 = 4N + 1$
 $8 = 2N, N = 4$
4, 5, 6

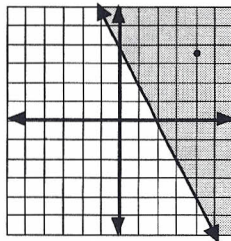
7) $.10D + .25Q = 1.00, D + Q = 7$

$$\begin{array}{r} 10D + 25Q = 100 \\ -10D - 10Q = -70 \\ \hline 15Q = 30, Q = 2 \end{array}$$

$$\begin{array}{l} D + (2) = 7 \\ D = 5 \end{array}$$

 $.10(5) + .25(2) = 1.00$
 $.50 + .50 = 1.00 \checkmark$

8) $Y \geq -2X + 4$



9) see graph

10) yes

11) $Y + X = 0 \Rightarrow Y = -X$
 $(-X) - 3X = -4, -4X = -4$
 $X = 1, Y + (1) = 0$
 $Y = -1$

12) $Y - 3X = -4 \Rightarrow Y = 3X - 4$
 $(-2) = 3(2) + b, b = -8$
 $Y = 3X - 8$ or $3X - Y = 8$

13) 15, 30, 45, 60, 75
25, 50, 75 LCM = 75

14) $2[1 + (-8)] = 18 - 2N$

15) $2[-7] - 18 = -2N$
 $-14 - 18 = -2N$
 $-32 = -2N, N = 16$

16) $3(16) - 5 + 6(16) + (10 - 6) =$
 $48 - 5 + 96 + 4 = 143$

17) $2/7 - 1/14 = 4/14 - 1/14 = 3/14$

18) $1.20 \times 100 = 120$

19) $5X + 15 = 45$
 $5X = 30, X = 6$

20) $2 \times 3 \times 17$

18A

1) 225

2) ± 13

3) 64

4) ± 10

5) 256

6) ± 12

7) $4^{5+2} = 4^7$

8) $8^{4+7} = 8^{11}$

9) $8^{7-3} = 8^4$

10) $3^{8+4} = 3^{12}$

11) $B^{2+3+5} = B^{10}$

12) $C^{1+3D^{5+4+2}} = C^{4D^{11}}$

13) 8^{X+Y}

14) $M^{10X-3X} = M^{7X}$

15) $8^{9+10-3} = 8^{16}$

16) $X^{5Y-2Y} = X^{3Y}$

18B

1) 625

2) $2 \times 2 \times 2 = 8$

3) 81

4) $7 \times 7 \times 7 = 343$

5) 289

6) ± 9

7) $5^{3+6} = 5^9$

8) $6^{4+2} = 6^6$

9) $18^{13-9} = 18^4$

10) $4^{8+5} = 4^{13}$

11) 16

12) $C^{1+2+3} = C^6$

13) $E^{5F^{3+4+2}} = E^{5F^9}$

14) $B^{6+7C^{1+3}} = B^{13C^4}$

15) $Y^{10+5-3} = Y^{12}$

16) $A^{8X-3X} = A^{5X}$

18C

- 1) 196
- 2) -11
- 3) 81
- 4) +7
- 5) $3^3+3 = 3^6$
- 6) $5^2+6 = 5^8$
- 7) $6^5-2 = 6^3$
- 8) $4^5+2 = 4^7$
- 9) $A^5+2B^4+1 = A^7B^5$
- 10) $BY+2Y = B^3Y$
- 11) $A^5-1 = A^4$
- 12) $X^5+2-7 = X^0$
- 13) add
- 14) subtract
- 15) $5(N+2) - 2N = 4(N+1) - 40$
- 16) $5N + 10 - 2N = 4N + 4 - 40$
 $3N + 10 = 4N - 36$
 $N = 46$ 46, 47, 48
- 17) $.05N + .10D = 1.60$, $N + D = 20$
 $5N + 10D = 160$
 $-5N - 5D = -100$

 $5D = 60$ $N + (12) = 20$
 $D = 12$ $N = 8$
- 18) $3Y = -6X + 10$
 $Y = -2X + 10/3$
- 19) $Y = 3X + 2$
 $Y = X + 4$

$$(X+4) = 3X+2 \quad Y = 1+4$$

$$X \Rightarrow 1 \text{ year} \quad Y = 5 \Rightarrow 5 \text{ ft.}$$

18D

- 1) -169
- 2) +12 or -12
- 3) 225
- 4) +10 or -10
- 5) $7^3+4+1 = 7^8$
- 6) $2^8+3+2 = 2^{13}$
- 7) $X^2+9 = X^{11}$
- 8) $A^4+5B^2 = A^9B^2$
- 9) $8^5-3 = 8^2$
- 10) $10^5-1 = 10^4$
- 11) $X^{10-4} = X^6$
- 12) $X^4Y+3Y-Y = X^6Y$
- 13) divide
- 14) multiply
- 15) $4(N+2) + 3(N+4) = 8N - 11$
- 16) $4N + 8 + 3N + 12 = 8N - 11$
 $7N + 20 = 8N - 11$
 $31 = N$ 31, 33, 35
- 17) $.25Q + .10D = 1.60$, $Q + D = 7$
 $25Q + 10D = 160$
 $-10Q - 10D = -70$

 $15Q = 90$ $(6) + D = 7$
 $Q = 6$ $D = 1$
- 18) $Y = 37X + 30$
- 19) $(215) = 37X + 30$
 $185 = 37X$
 $5 = X \Rightarrow 5 \text{ weeks}$
- 20) $(326) = 37X + 30$
 $296 = 37X$
 $8 = X \Rightarrow 8 \text{ weeks}$

18E

- 1) -121
- 2) +14 or -14
- 3) 49
- 4) +15 or -15
- 5) $A^2+4 = A^6$
- 6) $5^3+4 = 5^7$
- 7) $A^{2+1}B^{3+6}C^2 = A^3B^9C^2$
- 8) $X^4-3 = X^1$
- 9) $9^9-3 = 9^6$
- 10) $11^4+6 = 11^{10}$
- 11) $D^{3X-2X} = D^X$
- 12) $M^5+3-3 = M^5$
- 13) negative
- 14) same base
- 15) $4(N+2) = 3N + 3(N+4)$
- 16) $4N + 8 = 3N + 3N + 12$
 $4N - 4 = 6N$
 $-4 = 2N$
 $-2 = N$ -2, 0, 2
- 17) $.25Q + .10D = 1.75$, $Q + D = 10$
 $25Q + 10D = 175$
 $-10Q - 10D = -100$

 $15Q = 75$ $(5) + D = 10$
 $Q = 5$ $D = 5$
- 18) $4X + Y = 16$
- 19) $Y = 25X + 50$
 $Y = 10X + 200$
- 20) $25X + 50 = 10X + 200$
 $15X = 150$
 $X = 10 \Rightarrow 10 \text{ hours}$
 $Y = 10(10) + 200$
 $Y = 300 \Rightarrow 300 \text{ gizmos}$

19A

- 1) 4^{-2}
- 2) 7^{-2}
- 3) 4^3
- 4) 3^2
- 5) $\frac{1}{5^3}$
- 6) $\frac{1}{10^7}$
- 7) $7^{-3+(-8)} = 7^{-11}$
- 8) $6^{-2+(-3)} = 6^{-5}$
- 9) $9^{(-5)-(-2)} = 9^{-3}$
- 10) $3^{-8+4} = 3^{-4}$
- 11) $B^{-2+3+5}C^{-1-5+1} = B^6C^{-5}$
- 12) $C^{-1+3+1}D^{-5+4-2+4} = C^3D^1$
- 13) $8^5 \cdot 4 = 8^{20}$
- 14) $9^3 \cdot 5 = 9^{15}$
- 15) $A^{-1}B^2B^{-1}A^{-1}B^3 = A^{-1-1}B^{2-1+3} = A^{-2}B^4$
- 16) $C^0 = 1$ and won't change the answer.
 $B^{-3}C^3B^1C^3B^{-4} = B^{-3+1-4}C^{3+3} = B^{-6}C^6$