



Answer Key of Top 100 Word Problems

1) $C = 3.50 + 2.25m$; $C(18) = \$44.00$

2) 2

3) $T = 172 - 4t$; $T(9) = 136^\circ\text{F}$

4) $y = 3x + 5$; y-intercept = 5

5) Linear; $S = 8w + 15$; 10 weeks = \$95

6) Slope = 75 mi/hr; 2.5 hr = 187.5 miles

7) $P = 2l + 2w$; $P = 38$ cm

8) $C = 20 + 35m$; \$300 $\rightarrow$ 8 months

9) $h = 6w + 12$; after 8 weeks = 60 cm

10) $C = 10 + 0.08f$; 350 flyers = \$38

11) $x + y = 30$; $5x + 7y = 184$; $x = 13$, $y = 17$

12) $y = x + 1$ and $y = -2x + 7$; (2, 3)

13) $(x, y) = (12/5, 26/5) = (2.4, 5.2)$

14) $(x, y) = (16/7, 25/7)$

15) 50 adult tickets; 160 student tickets

16) 2^8

17) 3^8

18) 4.56×10^6

19) 1.496×10^9

20) 7.6×10^{-6}

21) $c^2 = 7^2 + 24^2$; $c = 25$ cm

22) Distance = $\sqrt{[(10-2)^2 + (11-3)^2]} = 8\sqrt{2} \approx 11.31$

23) $h^2 + 5^2 = 13^2$; $h = 12$ ft

24) A(4,6), B(7,6), C(5,9); rule $(x+3, y+4)$

25) D(-2,-1), E(-5,-1), F(-3,-4); rule $(-x, y)$

26) P(-1,1), Q(-1,4), R(-4,1); rule $(-y, x)$

27) M(-4,6); rule $(x, y) \rightarrow (2x, 2y)$

28) $V = s^3 = 512$ cm³

51) $C = 25 + 0.15m$; 250 min = \$62.50; \$407 $\rightarrow$ 2,546 $\frac{2}{3}$ min (not a whole minute)

52) 30 mpg; $y = 30x$; 15 gal $\rightarrow$ 450 miles

53) Linear; $W = 4t + 10$; after 12 min = 58 gal

54) y-intercept = \$10; slope = \$5/hr; $C = 5t + 10$

55) $p+h=48$; $8p+15h=520$; $p=40$ paperback, $h=8$ hardcover

56) $y=2x+1$ and $3x+y=16$; $(x,y)=(3,7)$

57) $4x+3y=18$ and $2x-3y=6$; $(x,y)=(4, 2/3)$

58) 8.43×10^6 ; new population 9.05×10^6

59) 4.5×10^{-7} g; $\times 1000 = 4.5 \times 10^{-4}$ g

60) $c^2=12^2+16^2$; $c=20$ cm

61) Distance = $\sqrt{[(5+3)^2 + (10-2)^2]} = 8\sqrt{2} \approx 11.31$

62) Diagonal = $\sqrt{(80^2 + 60^2)} = 100$ m

63) A(1,-2), B(4,-3), C(1,-4); rule $(x, -y)$

64) D(-4,0), E(-1,-1), F(-3,2); rule $(x-3, y-2)$

65) P(0,1), Q(0,3), R(-2,2); rule $(-y, x)$

66) M(9,-6); rule $(x, y) \rightarrow (3x, 3y)$

67) $V = \pi(4.5)^2(12) = 763.14$ ft³

68) TSA = $\pi r^2 + \pi r l = 301.44$ cm²

69) Lower prism = $8 \times 6 \times 5 = 240$ cm³; upper = $4 \times 6 \times 3 = 72$ cm³; total = 312 cm³

70) Slope = 1; y-intercept = 1; $y = x + 1$

71) Output at 4 = 19; input for 19 = 4; $y = 4x + 3$

72) $f(5)=7$; $f(-4)=-11$; $f(x)=9 \rightarrow x=6$

73) $y=x+1$ and $y=-x+5$; solution = (2,3)

74) $y=3x-2$ and $4x+y=16$; solution = (5/2, 11/2)

75) $3x+2y=14$ and $2x-2y=2$; solution = (16/5, 19/5)

76) Simplify $\rightarrow 2^2$; square $\rightarrow 2^2$; divide by $2^2 \rightarrow 2^{-1} = 1/2$

77) 1.496×10^8 km

78) 8.5×10^{-5} m