

# Pre-Algebra Placement Test

## Answer Key

1.  $(-8) + (-25) = -33$

2.  $(-7) \times (-15) = 105$

3.  $(11) - (-6) =$

$$(11) + (+6) = 17$$

4.  $(-45) \div (9) = -5$

5.  $-1^3 = -(1)(1)(1) = -1$

6.  $-(5)^2 = -(5)(5) = -25$

7.  $(-8)^2 = (-8)(-8) = 64$

8.  $\left(-\frac{2}{3}\right)^2 = \left(-\frac{2}{3}\right)\left(-\frac{2}{3}\right) = \frac{4}{9}$

9.  $9 \times 10^1 + 5 \times 10^0 + 2 \times \frac{1}{10^1} + 1 \times \frac{1}{10^2} + 4 \times \frac{1}{10^3}$

10. 1,825.6

11.  $\sqrt{100} = 10$

12.  $\sqrt{Y^2} = Y$

13.  $8 \cdot 2 + 5^2 - Y = 2(Y + 1) + 6$

$$8 \cdot 2 + 25 - Y = 2Y + 2 + 6$$

$$16 + 25 - Y = 2Y + 2 + 6$$

$$41 - Y = 2Y + 8$$

$$-Y = 2Y + 8 - 41$$

$$-Y = 2Y - 33$$

$$-Y - 2Y = -33$$

$$-3Y = -33$$

$$Y = 11$$

14.  $8 \cdot 2 + 5^2 - Y = 2(Y + 1) + 6 \Rightarrow$

$$8 \cdot 2 + 5^2 - (11) = 2((11) + 1) + 6$$

$$8 \cdot 2 + 5^2 - 11 = 2(12) + 6$$

$$8 \cdot 2 + 25 - 11 = 2(12) + 6$$

$$16 + 25 - 11 = 24 + 6$$

$$30 = 30$$

15.  $8M - 4M - 6 - 3 + 5M = 8^2 - 1$   
 $8M - 4M - 6 - 3 + 5M = 64 - 1$   
 $9M - 9 = 63$   
 $9M = 63 + 9$   
 $9M = 72$   
 $M = 8$
16.  $8M - 4M - 6 - 3 + 5M = 8^2 - 1 \Rightarrow$   
 $8(8) - 4(8) - 6 - 3 + 5(8) = 8^2 - 1$   
 $8(8) - 4(8) - 6 - 3 + 5(8) = 64 - 1$   
 $64 - 32 - 6 - 3 + 40 = 64 - 1$   
 $63 = 63$
17.  $(-3)^2 \div 9 + 6 = D$   
 $9 \div 9 + 6 = D$   
 $1 + 6 = D$   
 $D = 7$
18.  $(-3)^2 \div 9 + 6 = D \Rightarrow (-3)^2 \div 9 + 6 = (7)$   
 $9 \div 9 + 6 = 7$   
 $1 + 6 = 7$   
 $7 = 7$
19.  $\frac{1}{8} = \frac{7}{Y}$   
 $1Y = 8(7)$   
 $Y = 56$
20.  $\frac{11}{12} = \frac{A}{48}$   
 $12A = 11(48)$   
 $12A = 528$   
 $A = 44$
21.  $\frac{R}{8} = \frac{9}{6}$   
 $6R = 8(9)$   
 $6R = 72$   
 $R = 12 \text{ units}$
22.  $3 = 1 \times 3; 4 = 2 \times 2$   
 $\text{LCM} = 2 \times 2 \times 3 = 12$
23.  $6 = 2 \times 3; 9 = 3 \times 3$   
 $\text{LCM} = 2 \times 3 \times 3 = 18$
24.  $24 = 2 \times 2 \times 2 \times 3; 40 = 2 \times 2 \times 2 \times 5$   
 $\text{GCF} = 2 \times 2 \times 2 = 8$
25.  $15 = 3 \times 5; 35 = 5 \times 7$   
 $\text{GCF} = 5$

$$26. \quad \begin{array}{r} 5X^2 + 4X + 2 \\ + \quad 8X^2 + 3X - 4 \\ \hline 13X^2 + 7X - 2 \end{array}$$

$$27. \quad \begin{array}{r} 7X^2 - X - 3 \\ + \quad 6X^2 - 2X - 5 \\ \hline 13X^2 - 3X - 8 \end{array}$$

$$28. \quad \begin{array}{r} -4X^2 + 9X - 8 \\ + \quad 2X^2 - 6X + 1 \\ \hline -2X^2 + 3X - 7 \end{array}$$

$$29. \quad \begin{aligned} 2(7 \times 5) + 2(5 \times 6) + 2(6 \times 7) &= \\ 2(35) + 2(30) + 2(42) &= \\ 70 + 60 + 84 &= 214 \text{ in}^2 \end{aligned}$$

$$30. \quad \begin{aligned} 4\left(\frac{1}{2} \times 11 \times 9\right) + (9 \times 9) &= \\ 4(49.5) + (81) &= \\ 198 + 81 &= 279 \text{ ft}^2 \end{aligned}$$

$$31. \quad \begin{aligned} 9^2 + 12^2 &= H^2 \\ 81 + 144 &= H^2 \\ 225 &= H^2 \\ H &= 15 \text{ ft} \end{aligned}$$

$$32. \quad (2X + 1)(X + 6) = 2X^2 + 13X + 6$$

$$33. \quad (X + 7)(X + 9) = X^2 + 16X + 63$$

$$34. \quad (2X + 4)(X + 5) = 2X^2 + 14X + 20$$

$$35. \quad \begin{aligned} V &= \frac{1}{3}(3 \times 3)(4) \\ V &= \frac{1}{3}(9)(4) = 12 \text{ in}^3 \end{aligned}$$

$$36. \quad \begin{aligned} V &= \frac{1}{3}(3.14)(5)^2(7) \\ V &= \frac{1}{3}(3.14)(25)(7) \approx 183.17 \text{ yd}^3 \end{aligned}$$

$$37. \quad \begin{aligned} V &= (3.14)(6)^2(10) \\ V &= (3.14)(36)(10) \approx 1,130.4 \text{ ft}^3 \end{aligned}$$

$$38. \quad \begin{array}{r} 7:18 \\ - \quad 3:05 \\ \hline 4:13 \end{array}$$

39. 
$$\begin{array}{r} 2:44 \\ + 1:59 \\ \hline 3:103 \end{array} = 4:43$$

40. 
$$\begin{array}{r} 0136 \\ + 0438 \\ \hline 0574 \end{array} = 0614$$

41.  $2120 - 12:00 = 9:20 \text{ PM}$

42.  $1611 - 12:00 = 4:11 \text{ PM}$

43.  $3:45 \text{ AM}$

44. 
$$\begin{array}{r} 8'3" + 7" = 8'10" \\ - 5'5" + 7" = 6'0" \\ \hline 2'10" \end{array}$$

45. 
$$\begin{array}{r} 6 \text{ yd } 1 \text{ ft} \\ + 9 \text{ yd } 1 \text{ ft} \\ \hline 15 \text{ yd } 2 \text{ ft} \end{array}$$

46. 
$$\begin{array}{r} 25 \text{ lb } 8 \text{ oz} + 6 \text{ oz} = 25 \text{ lb } 14 \text{ oz} \\ - 15 \text{ lb } 10 \text{ oz} + 6 \text{ oz} = 16 \text{ lb } 0 \text{ oz} \\ \hline 9 \text{ lb } 14 \text{ oz} \end{array}$$

47. irrational

48. rational