

Comprehensive Miscellaneous Drill

The answers can be found in Part IV.

2	0 0 0 1 2
3	1 2
4	
5	2 3 9
6	1 8
7	2 9

6. What is the median of the set of data shown in the stem-and-leaf plot above?

(A) 20
(B) 32
(C) 42
(D) 44
(E) 52

“If you complete the marathon in under 5 hours, then you must have prepared adequately for the marathon.”

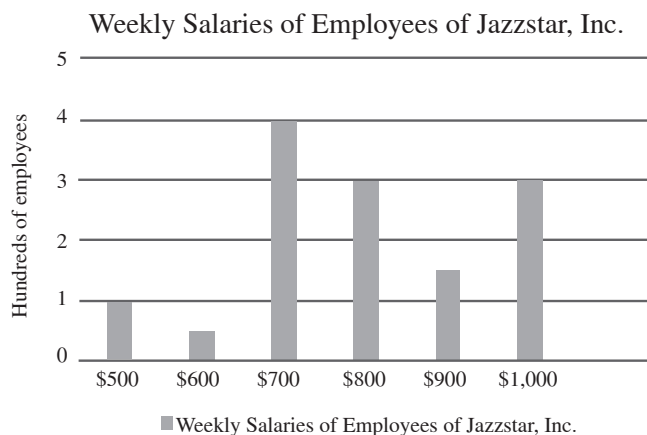
15. If the statement above is true, then which of the following **MUST** be true?

(A) If you did not prepare adequately for the marathon, then you will not complete the marathon in under 5 hours.
(B) If you do not complete the marathon in under 5 hours, then you did not prepare adequately for the marathon.
(C) If you prepare adequately for the marathon, then you will complete the marathon in under 5 hours.
(D) Proper preparation and planning prevents poor marathon performance.
(E) If you fail to complete the marathon, then it is proven that you did not prepare at all for the marathon.

18. If $\log_x 256 = 8$, then $x =$

(A) 2
(B) 10
(C) 16
(D) 32
(E) 64

Questions 25 and 26 refer to the table below.



25. Approximately what percent of employees at Jazzstar Inc. have a weekly salary of more than \$800 ?

(A) 23%
(B) 35%
(C) 40%
(D) 45%
(E) 60%

26. What is the median weekly salary at Jazzstar Inc.?

(A) \$650
(B) \$700
(C) \$750
(D) \$800
(E) \$850

34. A standard piece of A4 paper is a rectangle with dimensions 210 by 297 mm. Sandra makes an open-topped box by cutting four squares, each with side length 10 mm, from each of the four corners of the piece of paper and folding up the sides. What is the volume of the resulting open-topped box?
- (A) $52,630 \text{ mm}^3$
 (B) $62,370 \text{ mm}^3$
 (C) $526,300 \text{ mm}^3$
 (D) $574,000 \text{ mm}^3$
 (E) $623,700 \text{ mm}^3$
35. Nathalie's collection of nail polish consists of 4 bottles of blue nail polish, 7 bottles of green nail polish, 5 bottles of mauve nail polish, and 10 bottles of red nail polish. If Nathalie were to select 2 bottles of nail polish, one at a time and without replacement, at random from her collection, what is the probability that she selects a bottle of mauve nail polish followed by a bottle of blue nail polish?
- (A) $\frac{5}{169}$
 (B) $\frac{2}{65}$
 (C) $\frac{4}{25}$
 (D) $\frac{5}{26}$
 (E) $\frac{9}{26}$
38. If the fourth term of an arithmetic sequence is 22, and the sixth term of the same sequence is 32, then what is the sum of the seventh through seventy-seventh terms of the sequence, inclusive?
- (A) 37
 (B) 387
 (C) 14,840
 (D) 14,555
 (E) 15,052
42. A high school class of 55 students goes to the Magical SAT Wonderland amusement park. All 55 students ride the Sine Wave Spectacular, the Matrix Mixer, or both. If 37 students ride the Sine Wave Spectacular and 23 students ride both the Sine Wave Spectacular and the Matrix Mixer, then how many students ride the Matrix Mixer but NOT the Sine Wave Spectacular?
- (A) 14
 (B) 18
 (C) 32
 (D) 41
 (E) 64
47. Karl is deciding how to staff his factory for a project. The project will require 3 machinists and 4 laborers. If Karl has 7 machinists and 6 laborers available to work on the project, then how many possible groups of machinists and laborers are available for the project?
- (A) 40
 (B) 504
 (C) 525
 (D) 570
 (E) 75,600
50. If $\begin{bmatrix} x & y \\ 0 & z \end{bmatrix} \times \begin{bmatrix} 1 & 0 \\ 1 & 0 \end{bmatrix} = \begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$, then which of the following MUST be true?
- (A) $x = 0$
 (B) $y = 0$
 (C) $x = y$
 (D) $x = -y$
 (E) $xyz \neq 0$