

**ALGEBRA READINESS TEST**

**This is a diagnostic test of topics needed for success in a first course in algebra.**

A suggested time for this test is approximately 45 minutes.

**INSTRUCTIONS**

1. Wait until you are told to start before beginning the test.
2. Work each problem and mark the answer space on the answer sheet which corresponds to your answer. **DO NOT WRITE IN THIS BOOKLET.**
3. The test booklet, the answer sheet, and all scratch paper must be turned in when the test is finished.
4. If you find certain questions very time consuming, leave them temporarily. Come back to them after you have gone through the entire test if you have time.
5. This test is designed to assess your mathematical preparedness for a beginning algebra course. The results will not be part of your permanent record.
6. In scoring the test, only correct answers will be counted. If you have no idea which of the answers to a given question is the correct one, you should leave the question blank.
7. Calculators are not needed and may not be used in this test.

ALGEBRA READINESS TEST - 50 QUESTIONS - 45 MINUTES

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1.  $3.01 + 0.301 + 30 =$

- (A) 0.631 (B) 3.611 (C) 33.311 (D) 33.32
- 

2.  $\frac{6}{7} \times 42 =$

- (A) 36 (B) 49 (C) 252 (D) 294
- 

3.  $3.8 - 0.29 =$

- (A) 0.9 (B) 3.51 (C) 3.61 (D) 3.69
- 

4.  $\sqrt{43}$  is a number between

- (A) 6 and 7 (B) 7 and 8 (C) 21 and 22 (D) 84 and 88
- 

5. Judy's heart beats 70 times a minute. At this rate how many times does her heart beat in one half hour?

- (A) 1,400 (B) 2,100 (C) 3,500 (D) 4,200
- 

6. The table to the right shows the amounts of blue and yellow paint needed to obtain the given amounts of green paint. The amount of blue paint needed to produce the green paint is

- (A) four times the amount of yellow paint  
(B) three times the amount of yellow paint  
(C) two times the amount of yellow paint  
(D) one-third the amount of yellow paint

Amount of Paint		
blue	yellow	green
6	2	8
12	4	16
18	6	24

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7.  $3 - 7 + 4 - 2 =$

- (A) -3 (B) -2 (C) 1 (D) 5
- 

8. Pat drove her car 147 miles on a trip. At the end of the trip the car's total mileage was 3,835. What was the mileage of the car at the beginning of Pat's trip?

- (A) 2,688 (B) 3,588 (C) 3,688 (D) 3,982
- 

9. Tom has 3 jars, each containing either 10 or 20 marbles. Which of the following could NOT be the total number of marbles in the jars?

- (A) 40 (B) 50 (C) 60 (D) 70
- 

10. 45% of 81.2 is a number between

- (A) 4 and 40 (B) 40 and 80  
(C) 80 and 320 (D) 320 and 3,600
- 

11. Which of the following integers is closest to  $\frac{31}{7}$ ?

- (A) 3 (B) 4 (C) 5 (D) 6
- 

12. The least common multiple of 10 and 12 is

- (A) 2 (B) 30 (C) 60 (D) 120
- 

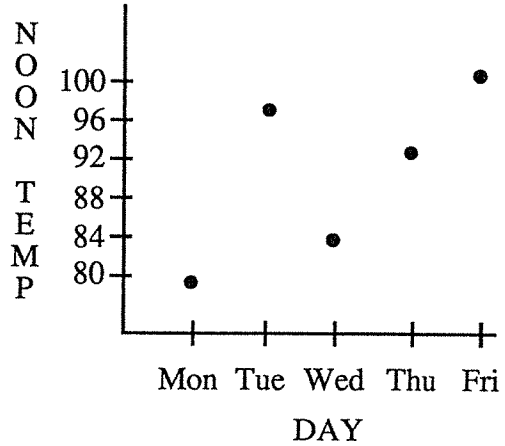
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13. The product of 5 and a number  $n$  is 35. Which of the following equations represents this statement?

- (A)  $\frac{n}{5} = 35$     (B)  $n - 5 = 35$     (C)  $n + 5 = 35$     (D)  $5n = 35$
- 

14. The temperature at noon on each of five successive days is plotted on the graph shown to the right. Which day had the greatest increase in noon temperature from that of the previous day?



- (A) Tuesday  
(B) Wednesday  
(C) Thursday  
(D) Friday
- 

15. If  $3s = t + 5$  and  $s = 4$ , then  $t =$

- (A) -7    (B) 3    (C) 7    (D) 17
- 

16. Dick and Jane each earn \$5 an hour at part time jobs. If on a certain day Dick works  $1\frac{1}{2}$  hours and Jane works  $2\frac{3}{4}$  hours, what is the total amount of their earnings that day?

- (A) \$25.00    (B) \$21.25    (C) \$18.33    (D) \$15.00
- 

17. Which of the following best approximates  $\frac{0.0523}{2.6}$ ?

- (A) 0.0002    (B) 0.002    (C) 0.02    (D) 0.2
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18.  $\left(1\frac{1}{8} + \frac{1}{8}\right) - \frac{5}{4} =$

- (A)  $-1$  (B)  $0$  (C)  $\frac{5}{8}$  (D)  $\frac{4}{5}$
- 

19. The ratio of wins to games played for a certain basketball team is 3 to 4. If the team played 48 games, how many games did the team win?

- (A) 12 (B) 16 (C) 24 (D) 36
- 

20. The prime factorization of 18 is

- (A)  $2 \times 9$  (B)  $3 \times 6$  (C)  $2 \times 2 \times 3$  (D)  $2 \times 3 \times 3$
- 

21.  $4 - (3 - 5) =$

- (A) 12 (B) 6 (C)  $-2$  (D)  $-4$
- 

22. What number divided by  $-3$  gives 12 as the result?

- (A)  $-36$  (B)  $-4$  (C) 4 (D) 36
- 

23. If  $\sqrt{a} = 9$ , then  $a =$

- (A) 3 (B) 4.5 (C) 18 (D) 81
- 

24. The area  $A$  of a trapezoid is given by  $A = \frac{1}{2}ha + \frac{1}{2}hb$ , where  $h$  is the height and  $a$  and  $b$  are the lengths of the parallel sides. If  $h = 7$ ,  $a = 5$ , and  $b = 9$ , then  $A =$

- (A) 14 (B)  $\frac{49}{2}$  (C) 49 (D) 98
- 

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25.  $(1.2)^2 - (0.2)^2 =$   
(A) 1 (B) 1.04 (C) 1.4 (D) 2

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26. Expressed as a decimal, 7% is  
(A) 0.07 (B) 0.7 (C) 7.0 (D) 700.0

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27.  $-5[(-2)(-3) + 9] =$   
(A) 75 (B) 15 (C) -15 (D) -75

---

28.  $\frac{2a}{6ab} =$   
(A)  $\frac{3}{b}$  (B)  $\frac{1}{3b}$  (C)  $\frac{b}{3}$  (D)  $\frac{3}{ab}$

---

29. If  $y = \frac{1}{3}$ , then  $\frac{15}{y} =$   
(A)  $\frac{1}{45}$  (B)  $\frac{1}{5}$  (C) 5 (D) 45

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30. It takes 21 minutes for a certain bacteria population to double. If there are 8,014,627 bacteria in this population at 10 a.m., what is the best estimate, in millions, of the number of bacteria at 10:42 a.m. on the same day?  
(A) 16 (B) 32 (C) 40 (D) 64

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31.  $\frac{1 + \frac{2}{3}}{1 - \frac{1}{6}} =$   
(A) -4 (B) -2 (C) 2 (D) 4

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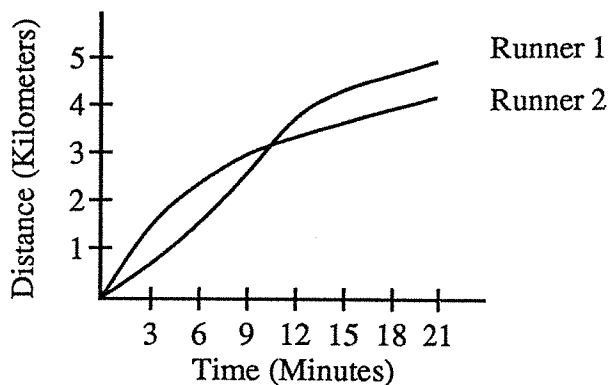
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32. Of the following numbers, which best approximates  $1,084 - 108.4$  ?

- (A) 10    (B) 100    (C) 1,000    (D) 10,000
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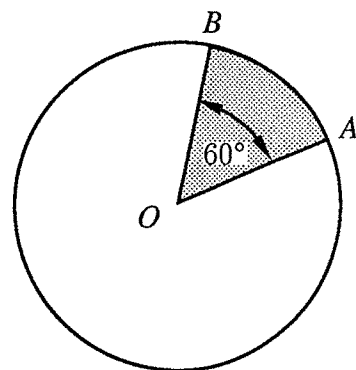
33. The distances covered by each of two runners during the first 21 minutes of a race are shown in the graph to the right. The time at which one runner passes the other is between



- (A) 3 minutes and 6 minutes
- (B) 6 minutes and 9 minutes
- (C) 9 minutes and 12 minutes
- (D) 12 minutes and 15 minutes
- 

34. A circle with center  $O$  is shown to the right. What fractional part of the circle is shaded?

- (A)  $\frac{1}{6}$     (B)  $\frac{1}{4}$     (C)  $\frac{1}{3}$     (D)  $\frac{1}{2}$



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35.

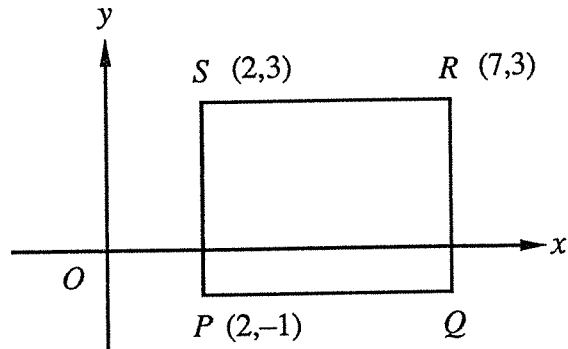


On the number line shown above, what number represents the point half the distance between points  $A$  and  $B$ ?

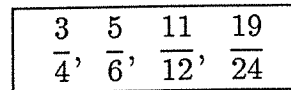
- (A) 0    (B) 4    (C) 8    (D) 9

36. What are the coordinates of vertex  $Q$  of rectangle  $PQRS$  shown in the figure to the right?

- (A)  $(-1, 7)$     (B)  $(3, -1)$   
 (C)  $(5, 2)$     (D)  $(7, -1)$



37. Which of the fractions shown in the box to the right is the largest?



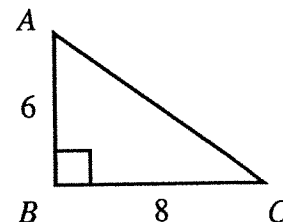
- (A)  $\frac{3}{4}$     (B)  $\frac{5}{6}$     (C)  $\frac{11}{12}$     (D)  $\frac{19}{24}$

38. A wire was bent into the shape of a rectangle with width 5 and length 7. If the wire is then bent into the shape of a square, what is the length of a side of the square?

- (A) 3    (B) 6    (C) 24    (D) 35

39. In right triangle  $ABC$  shown to the right, what is the length of  $AC$ ?

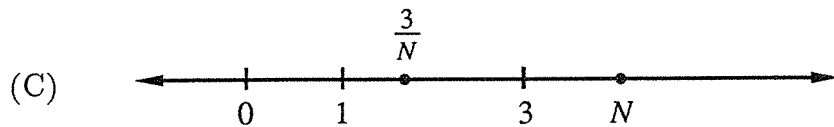
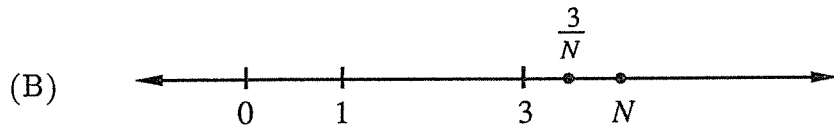
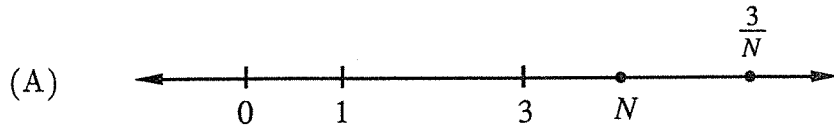
- (A) 10    (B) 14    (C) 24    (D) 48



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40. A number  $N$  is greater than 3. Which of the following best represents the location of  $\frac{3}{N}$  on the number line?



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41. Which of the following represents the ordering, from smallest to largest, of the numbers shown in the box to the right?

$\frac{1}{3}, \frac{3}{8}, 0.37, 0.38$
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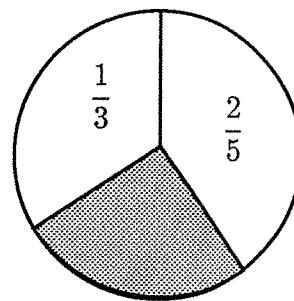
- (A)  $\frac{1}{3}, 0.37, 0.38, \frac{3}{8}$  (B)  $0.37, 0.38, \frac{3}{8}, \frac{1}{3}$   
(C)  $\frac{1}{3}, 0.37, \frac{3}{8}, 0.38$  (D)  $0.37, \frac{3}{8}, 0.38, \frac{1}{3}$

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42. In the figure shown to the right, what fractional part of the circle is shaded?

(A)  $\frac{4}{15}$  (B)  $\frac{3}{8}$  (C)  $\frac{5}{8}$  (D)  $\frac{11}{15}$



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43.  $\frac{7}{3} + \frac{7}{6} =$

(A)  $\frac{7}{9}$  (B)  $\frac{14}{9}$  (C)  $\frac{7}{3}$  (D)  $\frac{7}{2}$

- 
44. The price of a jacket was increased from \$40.00 to \$50.00. What was the percent increase in the price of the jacket?

(A) 10% (B) 20% (C) 25% (D) 80%

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45.  $\frac{3}{4} + 1.6 =$

(A)  $\frac{29}{12}$  (B)  $\frac{47}{20}$  (C)  $\frac{11}{9}$  (D)  $\frac{11}{20}$

- 
46. What is the diameter of a circle whose area is  $36\pi$  ?

(A) 12 (B) 36 (C)  $6\pi$  (D)  $12\pi$

- 
47. Which of the following is equal to  $0 \times 5$  ?

(A)  $0 - 1$  (B)  $\frac{2}{0}$  (C)  $0 + 3$  (D)  $\frac{0}{4}$

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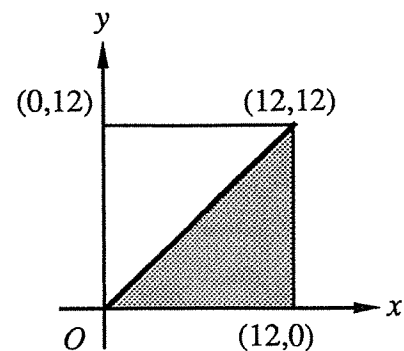
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48.  $5^3 \cdot 5^8 =$

- (A)  $5^{11}$  (B)  $5^{24}$  (C)  $25^{11}$  (D)  $25^{24}$
- 

49. In the figure shown to the right, what is the area of the shaded region?

- (A) 48 (B) 72 (C) 96 (D) 144



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50.  $(2 \times 10^5) \times (3 \times 10^4) =$

- (A)  $5 \times 10^9$  (B)  $5 \times 10^{20}$  (C)  $6 \times 10^9$  (D)  $6 \times 10^{20}$
- 

END OF EXAMINATION