The actual final has 10 multiple choice questions (4 points each) and 12 short answer questions (5 points each). Please do not assume that the content or difficulty level of these practice questions is exactly the same as the actual examination.

1. You buy two PCs at $570 each. You have to make a $96 down payment, and for the next year, you agree to pay the remainder in equal installments. How much will the monthly payments be?
   a. $39.50  
   b. $55.50  
   c. $87.00  
   d. $47.50  
   e. $95.00

2. Compute: $-3^2 + 8 \times 2^2 = $
   a. -4  
   b. -23  
   c. -41  
   d. 23  
   e. None of these

3. Perform the operation:
   a. 4\frac{1}{2}  
   b. 4\frac{1}{6}  
   c. 9\frac{1}{2}  
   d. 9\frac{1}{6}  
   e. None of these

4. Add: $2\frac{5}{7} + \frac{y}{14}$
   a. 3\frac{1}{2}  
   b. 2\frac{14}{7}  
   c. 3\frac{3}{2}  
   d. 3\frac{17}{18}  
   e. None of these

5. $21 \div 1\frac{1}{2} = $
   a. $\frac{2}{9}$  
   b. $1\frac{3}{7}$  
   c. $1\frac{7}{2}$  
   d. $7\frac{1}{2}$  
   e. $15\frac{3}{4}$

6. Convert $\frac{7}{9}$ to a decimal, rounded to the nearest tenth:
   a. 0.8  
   b. 0.88  
   c. 0.9  
   d. 0.8  
   e. 0.0888

7. Candidate A got $\frac{2}{5}$ of the vote. Candidate B got $\frac{3}{4}$ of the vote. If Candidate C got the rest of the votes, what fraction of the votes went to Candidate C?
   a. $\frac{1}{2}$  
   b. $\frac{3}{20}$  
   c. $\frac{7}{20}$  
   d. $\frac{13}{20}$  
   e. $\frac{1}{6}$
8. $7.2 + 6.9 + 0.077 =$
   a. 2.18   b. 21.8   c. 14.177   d. 141.77   e. None of these

9. Calculate: $0.8 \times 0.11 =$
   a. .88   b. 0.9   c. 0.09   d. 0.088   e. None of these

10. If you brought five sandwiches, each of which cost $12.00, not including 8.25% tax, after adding the tax, how much change would you get from a hundred dollar bill?
   a. $35.05   b. $95.05   c. $64.95   d. $4.95   e. None of these

11. Solve for $c$: \[rac{5}{11} = \frac{7}{c}\]
    a. $\frac{77}{11}$   b. $\frac{15}{2}$   c. $\frac{35}{11}$   d. 77   e. None of these

12. 81 is 90% of what number?
    a. 72.9   b. 729   c. 100   d. 90   e. None of these

13. Convert to a percent: $\frac{6}{15}$
    a. 2.5%   b. 6%   c. 25%   d. 33.3%   e. 40%

14. If you answer 35 questions and get 14 of them wrong, what percent did you get right?
    a. 2.86%   b. 77\%   c. 25%   d. 40%   e. 60%

15. What is 1.5% of 300?
    a. 450   b. 200   c. 20   d. 2   e. None of these

16. A laptop priced at $1200 was marked down 50%. A week later it is marked down another 25% from the previous sale price. What is the price?
    a. $300   b. $450   c. $1125   d. $150   e. $600

17. Compute: $-2 - (-31) - 2.3$
    a. -40   b. 23   c. -105   d. 81   e. None of these

18. Mount Everest measures 8,849 meters in elevation and the elevation of the Caspian Sea is -28 meters. What is their difference in elevation?
    a. 8,820 meters   b. –8,777   c. 8,777   d. -8,820   e. None of these

19. Write in scientific notation: five billion, seven hundred fifty four million

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20. A company with 270 employees has the gender breakdown shown below. How many more men work there than woman?

![Gender Breakdown Graph]

- Men: 60%
- Women: 40%

a. 162  b. 54  c. -54  d. -16  e. None of these

21. Juanita can choose between a sales job paying a fixed salary of $2000 per week or a sales job in which she gets paid a $62 commission on each sale. If she expects to sell 30 units per week, how much more will she make if she chooses the job paying according to a fixed salary?

a. $1860  b. $140  c. $12,400  d. $2092  e. $60,062

22. If \( \frac{3}{4} \) of the students passed, and there were 84 students in the class, how many did not pass?

a. 21  b. 83  c. 63  d. 48  e. None of these

23. Find 20% of 60% of 10,000

a. 6000  b. 2000  c. 2600  d. 1200  e. 1000

24. You need to cut 5 planks of wood that are \( 1 \frac{1}{4} \) feet long each, and 3 planks of wood that are \( 2 \frac{3}{4} \) each. If these are cut from a 20 ft length of wood, how much wood will be left?

a. 5 \( \frac{1}{2} \) feet  b. 7 feet  c. 15 \( \frac{1}{2} \) feet  d. 8 \( \frac{1}{4} \) feet  e. 6 \( \frac{1}{4} \) feet
25. There were 16 men at the block party and 20 women. What fraction of the people at the party were women?
   a. \(\frac{16}{20}\)  b. \(\frac{6}{9}\)  c. \(\frac{4}{9}\)  d. \(\frac{5}{9}\)  e. \(\frac{5}{4}\)

26. A taxi charges $2.50 for the first mile and $1.25 for each additional mile. How far did the taxi drive if the total cost of the trip was $17.50?
   a. 8 miles  b. 12 miles  c. 7 miles  d. 14 miles  e. \(\frac{1}{2}\) mile

27. Change 2.05 to a mixed number in simplified form
   a. 205  b. \(\frac{1}{20}\)  c. 2 \(\frac{1}{2}\)  d. 2 \(\frac{1}{30}\)  e. 2 \(\frac{1}{20}\)

28. If a recipe that serves 4 people calls for \(2 \frac{1}{2}\) cups of flour, how much flour should be used if there are 10 people to be served?
   a. 1 cup  b. 10 cups  c. \(6 \frac{3}{4}\) cups  d. \(8 \frac{3}{2}\) cups  e. 25 cups

29. Find the value of \(x^2 - 2y^2\) when \(x = 2\) and \(y = -2\).
   (a) 0  (b) 2  (c) 4  (d) -4  (e) -12

30. Simplify \(\frac{(x^2)^4 x^2}{x^6}\).
   (a) \(x^4\)  (b) \(x^2\)  (c) 6x  (d) 2\(x^2\)  (e) none of these

31. Find \(x\) if \(\frac{x}{3} + 1 = \frac{x}{6}\).
   (a) 0  (b) 1  (c) -3  (d) -6  (e) -18

32. Multiply and simplify \((x + 4)(x^2 - 5x)\)
   (a) \(6x^2 - 20x\)  (b) \(x^3 - x^2 - 20x\)  (c) \(2x^3 + 9x^2 - 20x\)
   (d) \(x^3 - 20x\)  (e) none of these

33. If \(\frac{x + 2}{5} = \frac{x - 4}{2}\), then \(x =\)
   (a) 2  (b) 4  (c) 8  (d) 10  (e) 20
34. If \( y = 9x - 5 \), then \( x = \)

(a) \( \frac{y - 5}{9} \)  
(b) \( \frac{y - 5}{-9} \)  
(c) \( \frac{5 - y}{9} \)  
(d) \( \frac{y + 5}{9} \)  
(e) \( \frac{y + 5}{-9} \)

35. Factor \( 6a^2b - 27ab \) completely.

(a) \( 3(2a^2b - 9ab) \)  
(b) \( 6(a^2b - 27ab) \)  
(c) \( 3ab(2a - 9ab) \)  
(d) \( 3ab(2a - 9) \)  
(e) \( 3a^2b(2 - 9ab) \)

36. A teller earns $70 in 8 hours. How much will she earn in 12 hours?

(a) $74  
(b) $100  
(c) $105  
(d) $105  
(e) $46.67

37. Simplify: \( \frac{a + 2}{2} \)

(a) \( \frac{a + 2}{a} \)  
(b) \( \frac{a + 2}{4a} \)  
(c) \( \frac{a}{4} \)  
(d) \( \frac{1}{4} \)  
(e) None of these

38. Solve for \( b \): \( 16ab - c = 32 \)

(a) \( \frac{2 + c}{a} \)  
(b) \( \frac{16 + c}{a} \)  
(c) \( \frac{2c}{a} \)  
(d) \( \frac{16c}{a} \)  
(e) None of these

39. Find the value of \( \sqrt{b^2 - 4ac} \) given that \( b = -10 \), \( a = -1 \), and \( c = 9 \).

40. Find the equation of the line that goes through the points (-2, 5) and (4, -7) Also, find the distance between these two points.

41. What is the slope of the line given by the equation \( 2x - 3y = 24 \)?

42. Simplify \( \sqrt{12a^9b^{25}} \sqrt{3a^6b^7} \)

43. Solve for \( x \) given that \( a = 9 \): \( -3 + 2(ax - 5) = 5(3x + 2) \)

44. A club sells tickets to an event for $8 for children and $10 for adults. If the total number of tickets sold for the event was 220 and the total amount received from tickets sales was $2030, how many children’s tickets and how many adult tickets were sold?

45. Simplify for all \( x \neq -3 \): \( \frac{6x^2 - 54}{5x + 15} \)

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46. Simplify: \(-12x^5 + 3x^4(6x^7 - 7x)\)

47. Solve for \(x\): \(x^2 = 5x - 6\)

\[
\begin{align*}
2x - 3y &= 7 \\
5x + 2y &= 8
\end{align*}
\]

48. Solve for \(x\) and \(y\):

49. Combine into one fraction and simplify:\(\frac{3x}{x + 2} - \frac{x}{5}\)

50. Solve for \(y\) and show how to represent the solution on a number line: \(10 - 2(3 + y) \leq -2 - 5y\)

51. Simplify the following completely, express all answers using only positive exponents: \(\frac{(2x^{-3})^2}{x^2y^{-3}}\)

52. If 800 students from Hudson College are from New Jersey, and this constitutes 8% of student population, how many students attend Hudson College?

53. Beth wants to invest $12,000 in a Certificate of Deposit (C.D.). If she receives 2.5% interest annually, how much money will she have in total at the end of the year?

54. Find the sum, simplify your answer completely. Assume \(x > 0\):
\[
\sqrt{8x^2} + 4x\sqrt{50}
\]

55. Perform the indicated operation. Simplify your answer completely: \((2x - 1)^3\)

56. Find the quotient: \(\frac{12x^5 - 24x^3 + 64x^2}{-4x^2}\)

57. Factor completely: \(5x^4 + 25x^3 + 20x^2\)

58. Factor completely: \(8x^2 + 10x - 3\)
1. C
2. D
3. D
4. C
5. E
6. D
7. C
8. C
9. D
10. A
11. B
12. D
13. E
14. E
15. E
16. B
17. B
18. E
19. E
20. B
21. B
22. A
23. D
24. A
25. C
26. B
27. E
28. C
29. D
30. A
31. D
32. B
33. C
34. D
35. D
36. C
37. E
38. E
39. $2\sqrt{34}$
40. $y = -2x + 1$, distance $= 6\sqrt{5}$
41. $m = \frac{2}{3}$
42. $6a^7b^{16}\sqrt{a}$
43. $x = \frac{23}{3} or 7\frac{2}{3}$
44. 85 children and 135 adults
45. $\frac{6(x - 3)}{5}$
46. $18x^{11} - 33x^5$
47. $x = 3 \& x = 2$
48. $x = 2, y = -1$
49. $\frac{-x^2 + 13x}{5(x + 2)}$
50. $y \leq -2$
51. $\frac{4y^3}{x^8}$
52. 10,000 students
53. $12,300$
54. $22x\sqrt{2}$
55. $8x^3 - 12x^2 + 6x - 1$
56. $-3x^3 + 6x - 16$
57. $5x^2(x + 4)(x + 1)$
58. $(2x + 3)(4x - 1)$