

Review of Practice Math Placement Test

Multiple Choice: Identify the choice that best completes the statement or answers the question.

1. A 13 foot wire stretches from the top of a pole to a point on the ground 5 feet from the base of the pole. If the ground is level and forms a right angle with the pole, what is the height, in feet, of the pole?

A. 12
B. 30
C. 8
D. 18
E. 16

2. Which of the following is an equivalent form of $\frac{4}{x} + \frac{3}{y}$?

A. $\frac{4x+3y}{xy}$
B. $\frac{4y+3x}{xy}$
C. $3x + 4y$
D. $\frac{12}{xy}$
E. $\frac{7}{xy}$

3. Which of the following statement is true?

A. $\frac{2}{3} = 0.667$
B. $-53 > -7$
C. $\frac{6}{5} > \frac{21}{10}$
D. $4.5\% = 0.0045$
E. $\frac{1}{3} = 0.\bar{3}$

4. Simplify: $(3 + \sqrt{5})^2$

A. $14 + 6\sqrt{5}$
B. 14
C. 30
D. $14 + 2\sqrt{5}$
E. $9 + 2\sqrt{5}$

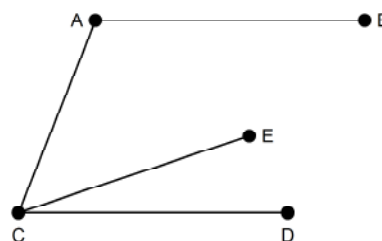
5. The quadratic equation $2x^2 - 3x = 20$ has two solutions. Find the large of the two solutions.

A. $x = \frac{5}{2}$
B. $x = -\frac{5}{2}$
C. $x = -4$
D. $x = -\frac{1}{2}$
E. $x = 4$

6. If the graph of $y = x^2$ is translated 4 units to the left and 1 unit up in the standard coordinate system, then the translated graph has which of the following equations?

A. $y = (x + 4)^2 - 1$
B. $y = (x + 1)^2 + 4$
C. $y = (x - 4)^2 - 1$
D. $y = (x - 4)^2 + 1$
E. $y = (x + 4)^2 + 1$

7. In the figure, \overline{AB} is parallel to \overline{CD} , $m\angle BAC = 105^\circ$, $m\angle ECD = 20^\circ$, and $m\angle ACE = x^\circ$.

Find x° .

A. 55°
B. 85°
C. 65°
D. 45°
E. 75°

8. The graphs of the lines $y = 4 - x$ and $x = 6$ intersect at a point. What is the y -coordinate of that point?
- A. 3
B. -2
C. 0
D. 1
E. 5
9. When buying airline tickets on the web, there is an added fee of 1.15% on the price of each ticket purchased. If a ticket from Boston to Raleigh costs \$180, what is the additional fee of the nearest cent?
- A. \$200.07
B. \$207.00
C. \$2.07
D. \$20.07
E. \$2.00
10. Tammy bought s shirts at d dollars per shirt, and p pants at $2d - 1$ dollars per pair. Which of the following is equivalent to the total amount Tammy spend in dollars (before taxes)?
- A. $sd + 2pd - p$
B. $sd + 2pd - 1$
C. $sd \cdot p(2d - 1)$
D. $(s + p)(3d - 1)$
E. $s + 3d + p - 1$
11. The intervals of weights of a groups of elementary school children are recorded in the table below. What percent of the group is found in the mode?

WEIGHTS OF STUDENTS	
Weight in lbs.	Frequency
51 – 60	3
61 – 70	16
71 – 80	24
81 – 90	22
91 – 100	18
101 – 110	12
111 – 120	3
121 – 130	2
TOTAL	100

- A. 28%
B. 13%
C. 14%
D. 12.5%
E. 24%

12. Which of the following is equal to $\left(\frac{1}{3}x^2\right)^{-2}$?
- A. $\frac{9}{x^4}$
B. $9x^4$
C. $6x^4$
D. $\frac{6}{x^4}$
E. $\frac{1}{9x^4}$
13. Which equation represents a line that contains the points $(-2, -7)$ and $(4, 5)$?
- A. $2x - y = 3$
B. $2x + y = 3$
C. $y = 2x + 3$
D. $y = 3x - 2$
E. $y = \frac{1}{2}x - 3$
14. The greatest common factor of $8x^3y^2z + 12x^2y^3z^2 - 4x^4yz^4$
- A. $16x^5y^5z^3 - 4x^4yz^4$
B. $16xy^4z^{-1}$
C. $4x^4y^3z^4$
D. $4x^2yz$
E. $4x^2y$
15. What kind of function would best model the data below, where x is the independent variabel and y is the depenent variable?
- | | | | | | | | |
|-----|-----|------|-----|-----|-----|------|------|
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| y | 128 | 33.2 | 8.1 | 1.9 | 0.6 | 0.13 | 0.03 |
- A. exponential
B. cubic
C. quadratic
D. linear
E. rational
16. The domain of the function defined by the equation $f(x) = \sqrt{x-3}$ is
- A. All real numbers.
B. $\{x \mid x < -3\}$
C. $\{x \mid x \geq 0\}$
D. $\{x \mid x \geq -3\}$
E. $\{x \mid x \geq 3\}$

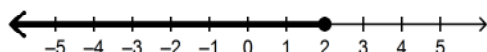
17. Which expression below is an equivalent form of $\frac{8m^3 - 4m^2}{2m^2}$ (where $m \neq 0$)?

A. $4m^2 - 2m$
B. $2m + 4$
C. $4m - 2$
D. $2m - 1$
E. $4m - 1$

18. The area formula for a trapezoid is $A = \frac{1}{2}h(b_1 + b_2)$. If $A = 18$, $h = 5$, and $b_2 = 2$, find b_1 .

A. $\frac{63}{2}$
B. $\frac{36}{5}$
C. $\frac{36}{7}$
D. $\frac{26}{5}$
E. 63

19. Given:



This is an illustration of the solution set for which inequality below?

A. $4x < 2$
B. $6x \geq 3$
C. $-3x \geq -6$
D. $2x \geq -18$
E. $2x > 4$

20. Simplify: $5(3 + 4x) - 6 + 7(x + 6)$

A. $51x + 27$
B. $21x - 21$
C. $27x + 51$
D. $21x + 21$
E. $27x - 51$

21. If the ratio of boys to girls on a high school yearbook committee of 15 members is 3 to 2, how many members of the committee are girls?

A. 9
B. 12
C. More information needed.
D. 6
E. 3

22. If $9r - 2s = 4s - 3r$, what is s in terms of r ?

A. $\frac{c}{2}$
B. r
C. $2r$
D. $4r$
E. $\frac{r}{4}$

23. A rectangular field is 45 feet wide and is enclosed by 166 feet of fencing. What is the area of the field in square feet?

A. 1,710
B. 1,722.25
C. 1867.5
D. 7,470
E. 38

24. The endpoints of the diameter of a circle have coordinates $(2, -3)$ and $(-4, 5)$. Find the length of the radius of the circle.

A. 5π
B. 10
C. 5
D. 4π
E. 4

25. Find the solution of the equation $16^{3-6x} = 8$.

A. $x = \frac{3}{8}$
B. $x = -\frac{7}{4}$
C. $x = \frac{5}{8}$
D. $x = -\frac{1}{2}$
E. $x = \frac{12}{5}$

26. A rescue helicopter is hovering 144 feet above a sailboat in distress. The helicopter drops a life raft. The height in feet, h , of the raft above the water can be modeled by $h(t) = -16t^2 + 144$, where t is the time in seconds after it is dropped. How many seconds after the raft is dropped will it hit the water?

A. 2
B. 3
C. 9
D. 3.5
E. 2.5

27. Find the slope of a line with equation $5x - 3y - 6 = 0$.

A. $-\frac{5}{3}$
B. $\frac{3}{5}$
C. -2
D. $-\frac{3}{5}$
E. $\frac{5}{3}$

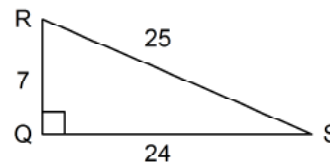
28. The complex fraction $\frac{4 - \frac{3}{4}}{\frac{9}{4} - 1.75}$ is equivalent to

A. $\frac{2}{13}$
B. None of these.
C. $\frac{13}{2}$
D. $\frac{13}{4}$
E. $\frac{4}{13}$

29. If an athlete's weight decreases from 180 pounds to 168 pounds, what is the percent decrease?

A. 6.7%
B. 0.93%
C. 7.1%
D. 0.06%
E. 6%

30. In the given right triangle, $\triangle QRS$, find the value of $\cos R$.



A. $\frac{7}{24}$
B. $\frac{25}{24}$
C. $\frac{24}{25}$
D. $\frac{7}{25}$
E. $\frac{24}{7}$

31. Simplify $(3 \times 10^{-3})^4$. Write the answer in scientific notation.

A. 81×10^{-12}
B. 12×10^{-12}
C. 3×10^{-1}
D. 8.1×10^{-11}
E. 30×10^{-7}

32. If $f(x) = |3x - 5|$, then find $f(-2)$.

A. -11
B. 13
C. 1
D. 11
E. -1