Precalculus/Calculus 1 Pretest: Practice Form

7/25/09

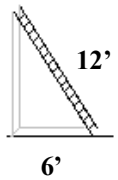
This test is to be taken **without** the aid of a calculator.

Section 1

1. Last year, a product had a retail price of $35.00. That price has decreased 12.3% over the past year. Find this year's price.

   a) $22.70 b) $30.70 c) $39.31 d) $4.31

2. A 12ft-long ladder is leaning against the side of a building. The base of the ladder is 6ft from the base of the building. Approximately how far up the side of the building does the ladder reach?



   a) 13.4 feet b) 10.4 feet c) 8 feet d) not enough information

3. Solve for x in the equation $5x+3=-2(4-3x)-2$

   a) $x=7$ b) $x=\frac{-13}{11}$ c) $x=\frac{-13}{7}$ d) not given

4. Simplify the expression $\frac{6x^2+3x}{3x}$.

   a) $6x^2$ b) $2x$ c) $2x+1$ d) not given

5. Simplify the expression $(-3y^4)^3$

   a) $-27y^{12}$ b) $-3y^7$ c) $-9y^{12}$ d) not given

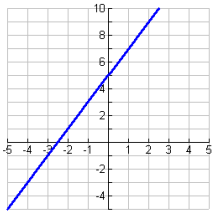
6. Determine the slope of a line that contains the points (12, -3) and (12, 5).

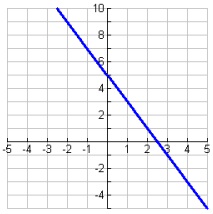
   a) 0 b) -8 c) 8 d) undefined

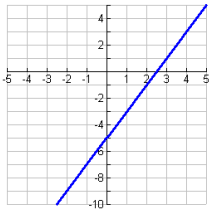
7. Find the difference $\frac{6}{8x}-\frac{x}{6}, \quad x\neq 0$

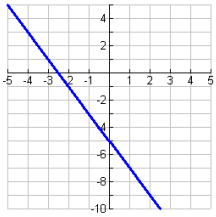
   a) $\frac{6-x}{8x-6}$ b) $\frac{1}{8}$ c) $\frac{-2x^2+9}{12x}$ d) $\frac{6-x}{48x}$

8. Which of the following graphs corresponds to the equation $2x - y = -5$

a) 

b) 

c) 

d) 

9. Simplify the expression $\dfrac{9x^2y^3}{12xy^4}$

a) $\dfrac{3}{4}xy$ b) $3xy^3(\dfrac{3x}{4y})$ c) $\dfrac{3x}{4y}$ d) not given

10. Evaluate the expression $5x^2 - x^4$, for $x = -2$

a) 4 b) 84 c) 36 d) not given

11. Simplify the expression $3(5-x) - 2x(4-5x)$.

a) $-10x^2 - 11x + 15$ b) $15 - x$ c) $10x^2 - 11x + 15$ d) not given

12. Simplify the complex fraction $\dfrac{\dfrac{3xy^2}{2}}{6x^2}$

a) $\dfrac{y^2}{4x}$ b) $\dfrac{y^2}{4}$ c) $9x^3y^2$ d) not given

13. Add the fractions $\frac{3}{x-y}+\frac{3}{x+y}$.

a) $\frac{6}{x+y^2}$ b) $\frac{6x+6y}{x^2-y^2}$ c) $\frac{12}{x-y}$ d) $\frac{6x}{x^2-y^2}$

14. Find the linear equation containing the points (5, 2) and (-1, 1).

a) $y=\frac{1}{5}x+1$ b) $y=6x+7$ c) $y=\frac{1}{6}x+\frac{7}{6}$ d) not given

15. Determine the point at which the lines $x+2y=9$ and $-2x-3y=-3$ intersect.

a) (-3, 3) b) (-21, 15) c) (3, 4) d) no solution

Section 2

16. Find the product $(x-3)(x^2+3x+5)$.

a) $x^3+14x-15$ b) $x^3-4x-15$ c) $x^3-6x^2-4x-15$ d) not given

17. Simplify the fraction $\frac{(2x^2\sqrt{x+2}\ )^2}{x^3}$.

a) $\frac{4x+8}{x}$ b) $4x^2+8x$ c) $4x\sqrt{x+2}$ d) $4x^2+4x$

18. Solve the inequality $-2\le 2x+1<5$

a) $\frac{-3}{2}\le x<2$ b) $\frac{-1}{2}\le x<3$ c) $2<x\le\frac{-3}{2}$ d) not given

19. Simplify the fraction $\left(\frac{8x^3}{27y^6}\right)^{-\frac{1}{3}}$

a) $-\frac{2x}{3y^2}$ b) $\frac{8}{27}xy^2$ c) $\frac{3y^2}{2x}$ d) not given

20. Given the function $f(x)=\begin{cases}6x-1, & if \ \ x\le -1\\ 3x+1, & if \ \ x>-1\end{cases}$, find $f\left(-\frac{1}{3}\right)$

a) 2 b) 0 c) -3 d) -1

21. Given the functions $f(x)=3x$ and $g(x)=2x+5$, find $f(g(x))$

a) $6x+5$ b) $6x^2+15x$ c) $6x+15$ d) not given

22. Given the functions $f(x)=3x-1$, find the inverse function $f^{-1}(x)$.

a) $\frac{x+1}{3}$ b) $1-3x$ c) $\frac{1}{3x-1}$ d) $3x+1$

23. Find the x-intercepts of the graph of the function $f(x)=x^2-3x+2$

a) $\{0, 2\}$ b) $\{1, 0\}$ c) $\{-1, -2\}$ d) not given

24. Find and simplify $f(x+h)-f(x)$, where $f(x)=2x^2-5$

a) $2h^2-5$ b) $2h^2+4xh+4x^2-10$ c) $2h^2-10$ d) $2h^2+4xh$

25. State the domain of the function $f(x)=\sqrt{3x+2}$

a) $x\le -\frac{2}{3}$ b) $x<-\frac{2}{3}$ c) $x\ge -\frac{2}{3}$ d) $x>-\frac{2}{3}$

26. Solve the exponential equation $5^{-n}=125^{3n+5}$

a) $n=-\frac{3}{2}$ b) $n=-\frac{5}{4}$ c) $n=-\frac{1}{2}$ d) no solution

27. Solve the equation $\log_5 x=-2$

a) $\frac{1}{25}$ b) -25 c) $\frac{1}{32}$ d) no solution

28. Simplify the expression $2\log(x)+\log(y)$

a) $\log 2(x+y)$ b) $\log(x^2y)$ c) $\log\left(\frac{x^2}{y}\right)$ d) $\log(xy)^2$

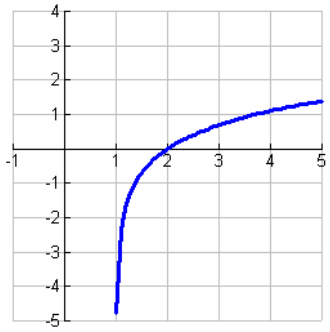
29. Convert $30°$ to radians.

a) $\frac{\pi}{3}$ b) $\frac{30}{\pi}$ c) $\frac{\pi}{6}$ d) $\frac{\pi}{12}$

30. Simplify the trigonometric expression $\sec x(\cot x+\sin x)$

a) $\cot^2 x+1$ b) $\csc x+\tan x$ c) $\tan x(\csc x+1)$ d) $\sin x+\csc x$

31. The graph corresponds to which function?



a) $-(e^{2+x})$ b) $\ln(x+1)$

c) $\ln(x-1)$ d) $\frac{-2}{e^x}$

32. Solve the trigonometric equation for t.

$$2\sin t-5=-4,\ \text{for}\ 0\le t\le 2\pi$$

a) $\frac{\pi}{6},\frac{5\pi}{6}$ b) $\frac{\pi}{3},\frac{2\pi}{6}$ c) $\frac{\pi}{4},\frac{3\pi}{4}$ d) $\frac{\pi}{6},\frac{7\pi}{6}$