

You must complete this exam within 45 minutes. No calculators allowed.

1. Find numbers a and b such that $(2^a)^b \neq 2^{a+b}$.

2. Simplify: $\sqrt{20n^{12}m^4} = ?$

3. Simplify: $7a - 2(b - 5) + 5(2 - a) = ?$

4. Simplify: $\frac{12n^3m^2 + 9n^4m^3}{3n^2m^2} = ?$

5. Simplify: $\frac{4w-2}{5w^3} \cdot \frac{10w}{2w^2-w} = ?$

6. $y = (2y + 1)/y$, $y^{-1} = ?$

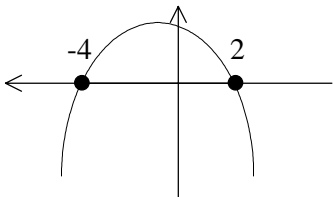
7. Write as one fraction. $\frac{1}{a^2} - \frac{1}{2} = ?$

8. Solve for x : $x + 1 = 2x^2$.

9. $g(x) = \frac{2-x}{x-3}$, $g(-5) = ?$

10. $16^{1/4} \cdot 9^{3/2} = ?$

11. Where is the function pictured > 0 ?



12. Find the coordinates (x, y) of the point of intersection of the graphs of $x - 3y = 1$, $2x - 5y = 3$.

13. Find the slope of the line $3x + 4y = 6$.

14. Find the surface area of the top and bottom of a box (rectangular solid) with height h , length l and width w .

15. Graph $y = -x^2 + x + 2$.

16. Graph $|1 - x|$.

17. $f(x) = 2^x - x^{-3}$. $f(-1) = ?$

18. Solve for x . $\log_2(x + 5) = 3$.

19. Graph $f(x) = (1/2)^x$.

20. If 2^{10} is approximately equal to 10^3 , then find the power of 10 which is nearest to 2^{60} .

21. Find the distance between the following points of the plane: $P = (-1, 2)$ and $Q = (-2, -1)$.

22. $f(x) = \sqrt{x-1}$, $f(x^2) = ?$

23. Write t in terms of x . $x = e^{1-3t}$.

24. Find a function involving logarithms which has one root, $x = -1$, and has one vertical asymptote, $x = 0$.

25. Graph $y = -\frac{1}{2}x + 4$.

26. $f(x) = \frac{x}{1-x}$, $f(f(x)) = ?$

27. Solve for y . $|3-y| < 4$.

28. Find $g(f(x))$ where $f(x) = x^2$, $g(x) = x + 1$.

29. $f(x) = \frac{x}{2-x}$. For which x is $f(x) = 3$?

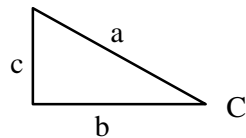
30. Find the domain of $f(x) = x/\sqrt{x-1}$.

31. $\sin(\pi/2) = ?$

32. Simplify: $\tan \theta \cos \theta$

33. Simplify: $\sin \theta \tan \theta + \cos \theta$

34. $\cos(C) = 2/3$, $b = 3$. Find a .



35. Graph over one period which starts with 0. $\sin(x/2)$

The range of numbers following some problem numbers, e.g., 1(170-176), are the corresponding page numbers in *Cliff's Math Review for Standardized Tests*. Send comments or questions about this exam to: www.math.hawaii.edu/~dale

Courses and their required Assessment Exam scores:

Math 140:17, Math 203:17, Math 215:22, Math 241:25, Math 251:30

1(170-176). $a = 1, b = 1$

2(170-176). $2n^6m^2\sqrt{5}$

3(128-130). $2a - 2b + 20$

4(128-139). $4n + 3n^2m$

5(149-159). $4/w^3$

6(63-66). $y/(2y + 1)$

7(149-159). $\frac{2 - a^2}{2a^2}$

8(146-149). $x = -1/2, 1$

9(110-112). $-7/8$

10. 54

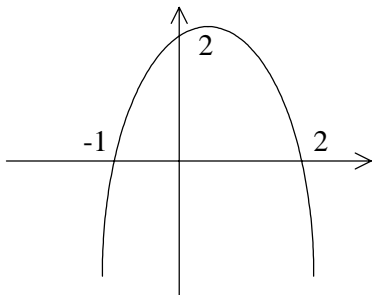
11. $-4 < x < 2$

12(122-127). (4, 1)

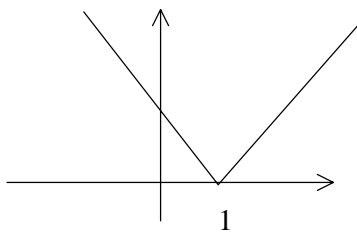
13. $-3/4$

14(241-246). $2wl$

15.



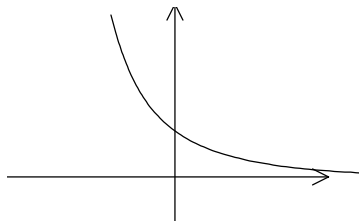
16.



17. $3/2$

18. $x = 3$

19.



20. 10^{18}

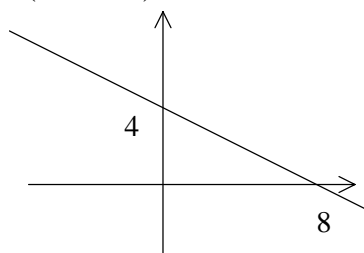
21(371). $\sqrt{10}$

22. $\sqrt{x^2 - 1}$

23. $t = (1 - \ln x)/3$

24. $\ln(-x)$

25(166-170).



26. $x/(1 - 2x)$

27(159-161). $-1 < y < 7$

28. $x^2 + 1$

29. $x = 3/2$

30. $x > 1$

31. 1

32. $\sin \theta$

33. $\sec \theta$

34. $9/2$

35.

