

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

1. Find numbers a and b such that

$$\sqrt{a^2 - b^2} \neq a - b$$

2. Simplify: $\sqrt{12x^8y^{10}} = ?$

3. Simplify: $13x - 3(y + 1) - 2(3 - x) = ?$

4. Simplify: $\frac{9p^3q^5 - 6p^2q^3}{3p^2q^3} = ?$

5. Simplify: $\frac{2x+4}{3x} \cdot \frac{9x^3}{x^2+2x} = ?$

6. $a = x/(yz)$, $a^{-2} = ?$

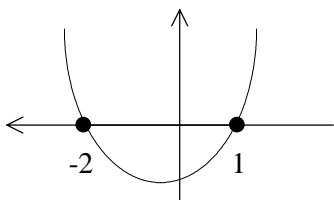
7. Write as one fraction. $\frac{x}{2} + \frac{2}{x} = ?$

8. Solve for x : $3x^2 = 2 - 5x$.

9. $g(x) = \frac{x+2}{2-x}$, $g(-4) = ?$

10. $27^{4/3} \cdot 16^{1/4} = ?$

11. Where is the function pictured > 0 ?



12. Find the coordinates (x, y) of the point of intersection of the graphs of $y + 2x = 1$, $y - 4x = 7$.

13. Find the slope of the line $3x + 2y = 1$.

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

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

16. Graph $|x - 2|$.

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

18. Solve for x . $\log_2(x - 1) = 2$.

19. Graph $f(x) = 2^{-x}$.

20. If 2^{10} is approximately equal to 10^3 , then find the power of 10 which is nearest to 2^{50} .

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

22. $f(x) = 1/x$, $f(x-1) = ?$

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

24. Find a function involving logarithms which has one root, $x = 3$, and has one vertical asymptote, $x = 2$.

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

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

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

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

29. $f(x) = \frac{x}{1-x}$. For which x is $f(x) = 4$?

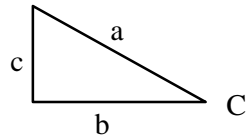
30. Find the domain of $f(x) = \sqrt{x^2 - 4}$.

31. $\sin(0) = ?$

32. Simplify: $1 + \tan^2\theta$

33. Simplify: $1/\sec^2\theta$

34. $\cos(C) = 3/4$, $b = 2$. Find a .



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

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). $a = 2, b = 1$

2(170-176). $2x^4y^5\sqrt{3}$

3(128-130). $15x - 3y - 9$

4(128-139). $3pq^2 - 2$

5(149-159). $6x$

6(63-66). y^2z^2/x^2

7(149-159). $\frac{x^2 + 4}{2x}$

8(146-149). $x = -2, 1/3$

9(110-112). $-1/3$

10. 162

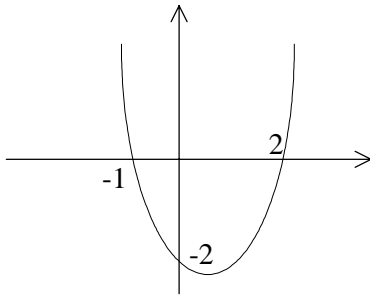
11. $x < -2$ or $1 < x$

12(122-127). $(-1, 3)$

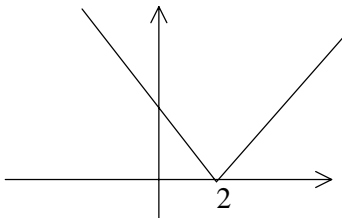
13. $-3/2$

14(241-246). $2hl + 2wl + 2wh$

15.



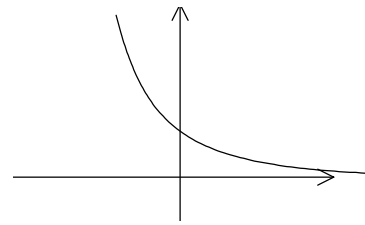
16.



17. $-1/2$

18. $x = 5$

19.



20. 10^{15}

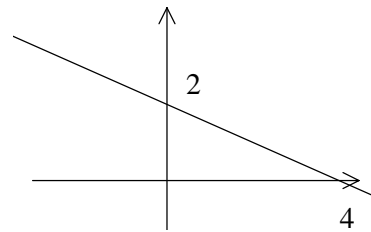
21(371). $\sqrt{10}$

22. $1/(x - 1)$

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

24. $\ln(x - 2)$

25(166-170).



26. x

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

28. $(x + 2)^2$

29. $x = 4/5$

30. $x \leq -2$ or $2 \leq x$

31. 0

32. $\sec^2\theta$

33. $\cos^2\theta$

34. $8/3$

35.

