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

1. Find numbers a and b such that $\frac{1}{a}+\frac{1}{b}\neq\frac{1}{a+b}$.

2. Simplify: $\sqrt{27a^4b^{20}}=?$

3. Simplify: $10c+4(z-2)-2(3+c)=?$

4. Simplify: $\frac{15x^3y^5-10x^2y^3}{5xy^3}=?$

5. Simplify: $\frac{2z-2}{3z}\bullet\frac{6z^2}{z^2-z}=?$

6. $x=y^2/z,\ x^{-2}=?$

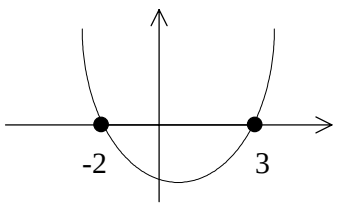
7. Write as one fraction. $\frac{a}{b}+\frac{b}{a}=?$

8. Solve for x: $2x^2+x=3$.

9. $f(x)=\frac{1-2x}{x-2},\ f(-3)=?$

10. $8^{4/3}\cdot 27^{2/3}=?$

11. Where is the function pictured >0?



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

13. Find the slope of the line $-x+5y=3$.

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

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

16. Graph $|x+1|$.

17. $h(x)=(-1)^x-x^3.\quad h(-1)=?$

18. Solve for x. $\log_5(x+4)=1$.

19. Graph $f(x)=3^{-x}$.

20. If 2^{10} is approximately equal to 10^3, then find the power of 10 which is nearest to 2^{40}.

21. Find the distance between the following points of the plane: $P = (-1, 3)$ and $Q = (2, 2)$.

22. $h(x) = 1/\sqrt{x}$, $h(x-4) = ?$

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

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

25. Graph $y = -\frac{1}{3}x + 3$.

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

27. Solve for y. $|2 - y| < 3$.

28. Find $g(f(x))$ where $f(x) = 1/x$, $g(x) = 1 - x$.

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

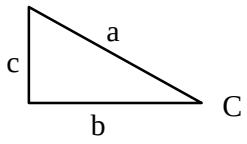
30. Find the domain of $f(x) = \sqrt{x+1}\,/x$.

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

32. Simplify: $\sin^4\theta - \cos^4\theta$

33. Simplify: $1 + \cot^2\theta$

34. $\tan(C) = 4/3$, $c = 1$. Find b.



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

Math Assessment Practice Exam 3 Answers Score =

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). $3a^2b^{10}\sqrt{3}$

3(128-130). $4z + 8c - 14$

4(128-139). $3x^2y^2 - 2x$

5(149-159). 4

6(63-66). z^2/y^4

7(149-159). $\dfrac{a^2 + b^2}{ab}$

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

9(110-112). $-7/5$

10. 144

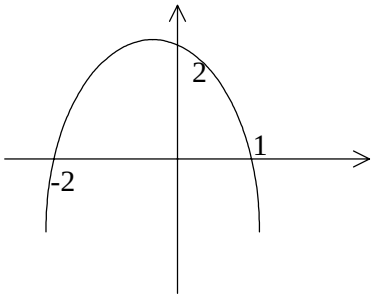
11. $x < -2$ or $3 < x$

12(122-127). $(-3, -2)$

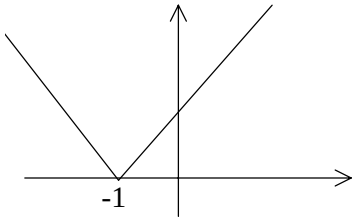
13. 1/5

14(241-246). $2hl + 2hw$

15.



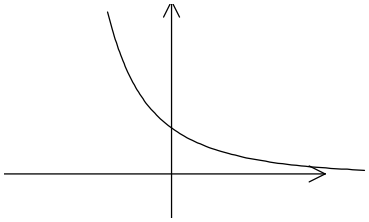
16.



17. 0

18. $x = 1$

19.



20. 10^{12}

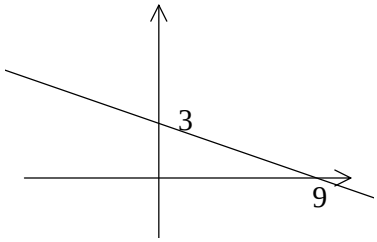
21(371). $\sqrt{10}$

22. $1/\sqrt{x-4}$

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

24. $\ln(x + 1)$

25(166-170).



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

27(159-161). $-1 < y < 5$

28. $1 - \frac{1}{x}$

29. $x = 6$

30. $x \geq -1$ and $x \neq 0$

31. 0

32. $\sin^2\theta - \cos^2\theta$

33. $\csc^2\theta$

34. 3/4

35.