

MATH 151 SAMPLE TEST 2

Time Allowed 15 Minutes

On the test there will be 10 questions very similar to those below.

Factorizing

Find the roots of the following quadratic equations:

1. $x^2 + 5x + 6 = 0$

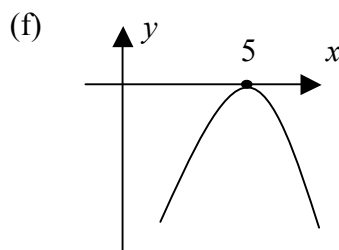
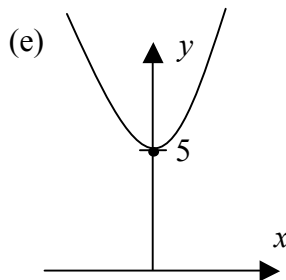
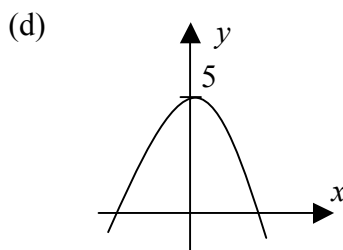
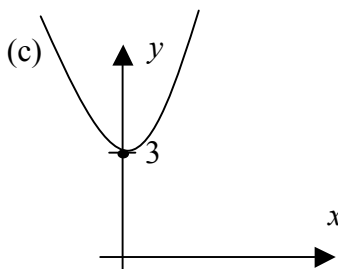
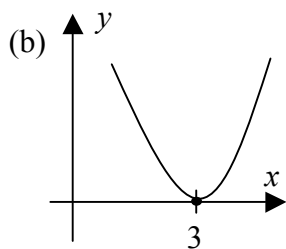
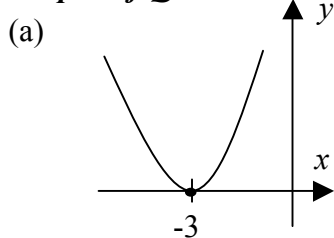
2. $x^2 - 7x + 10 = 0.$

Factorize the following quadratics:

3. $2x^2 + 7x + 6$

4. $2x^2 - 9x + 10.$

Graphs of Quadratics



5 to 8: Which graph above is the graph of the quadratic function:

5. $y = (x + 3)^2$

6. $y = (x - 3)^2$

7. $y = -2x^2 + 5$

8. $y = 2x^2 + 5.$

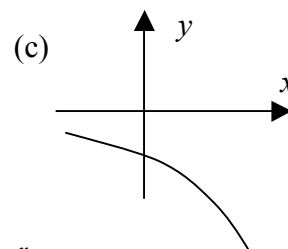
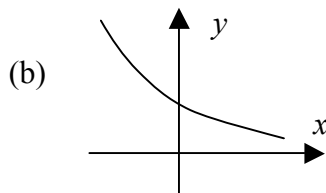
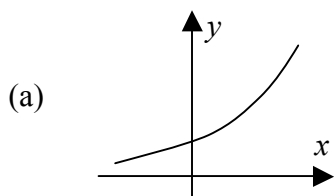
Completing the square

Find the vertex of each of the following parabolas:

9. $y = 3(x - 2)^2 - 5$

10. $y = 3(x + 2)^2 + 5.$

Exponential Graphs



11 to 12: Which graph above is the graph of

11. $y = 3e^x$

12. $y = 3e^{-x}$

Compound Interest

\$100 is invested at an annual interest rate of 5% per annum compounded annually. To the nearest dollar, what is the investment worth after

13. 5 years

14. 8 years.

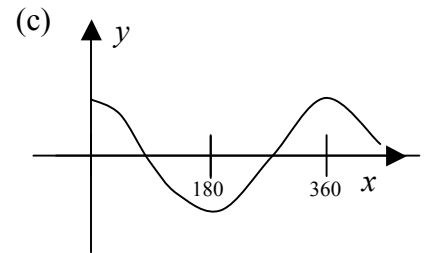
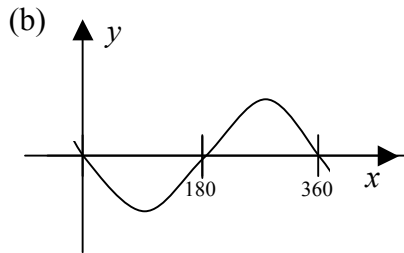
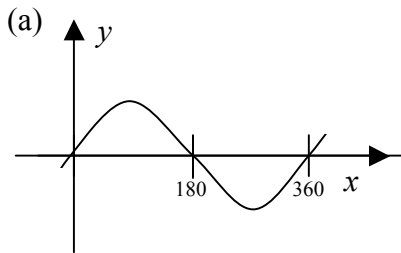
Logarithms

Find the value of t (to at least two decimal places), where

15. $100 = 5^t$

16. $10 = 3^t$

Trig Graphs



Which graph above is the graph of

17. $y = 2 \sin x$

18. $y = 2 \cos x$

Functions

If $f(x) = 3x$ and $g(x) = x - 1$, find the composite functions:

19. $f(g(x))$

20. $g(f(x))$.

For each function $f(x)$ below, find its inverse function $g(x)$:

21. $f(x) = 2x + 3$

22. $f(x) = 3x - 2$.