Calculus ABC Test II—Version 920 **Name:** _____

Lecture section: _____ **Student Number:** _____

PUT ANSWERS IN BOXES. NO BOOKS/NOTES/CALCULATORS. DO YOUR OWN WORK. Simplify answers where possible. Include units where needed. All angles are in radians. $\log = \log_{10}$.

1. Find the equation of the line through the point (-1,-2) and parallel to the line $x+3y=6$ in *slope-intercept* form.

2. Find the value of:

$$\arctan(-1)$$

3. Solve for x:

$$\sqrt{2x+1}+1=x$$

4. Rewrite by completing the square: $3t^2-12t+6$

5. Find the value of:

$$\cos\left(\frac{5\pi}{6}\right)$$

6. Simplify as far as you can:

$$\ln(8x^3)-\ln(4x^2)$$

7. Graph the function $y=e^x$.
Label with the following values (if applicable): each intercept, location of each asymptote, and (x,y) coordinates of each min and max. Also include the coordinates of one other point.

8. Solve for x (write answer as a rational number):

$$8^x=16$$

9. If $f(t)=3t^4+7t^3-4t+3$, find $f'(t)$.

10. If $y = x^{-4/3}$, find dy/dx.

11. If $f(x) = \cos(x^3)$, find $f'(x)$.

12. If $F(x) = e^{x+1}$, find $F'(x)$.

13. Find the derivative of

$$f(x) = \sqrt{x}\cos(x)$$

14. Find the derivative of

$$f(x) = \frac{x^{3/2}}{x+1}$$

15. Find the derivative of

$$h(t) = \frac{\sin(t)}{t+1}$$

16. Find a function $f(x)$ whose derivative is:

$$f'(x) = x + e^x$$

17. Evaluate the indefinite integral:

$$\int \cos(2-x)\,dx$$

18. Evaluate the indefinite integral:

$$\int \theta\sin(\theta^2)\,d\theta$$

19. Evaluate the definite integral:

$$\int_1^2 t^2\,dt$$

20. Evaluate the definite integral:

$$\int_{-\pi/2}^{\pi/4} \cos(2\theta)\,d\theta$$