## Classroom Voting Questions: Calculus II

## Section 7.7/7.8 Improper Integrals

- 1. True or False: If f is continuous for all x and  $\int_0^\infty f(x)dx$  converges, then so does  $\int_a^\infty f(x)dx$  for all positive a.
  - (a) True, and I am very confident
  - (b) True, but I am not very confident
  - (c) False, but I am not very confident
  - (d) False, and I am very confident
- 2. **True or False:** If f is continuous for all x and  $\int_0^\infty f(x)dx$  diverges, then so does  $\int_a^\infty f(x)dx$  for all positive a.
  - (a) True, and I am very confident
  - (b) True, but I am not very confident
  - (c) False, but I am not very confident
  - (d) False, and I am very confident
- 3. Does  $\int_1^\infty \frac{dx}{1+x^2}$ 
  - (a) Converge
  - (b) Diverge
  - (c) Can't tell with what we know
- 4. Does  $\int_{1}^{\infty} \frac{dx}{\sqrt{x^4 + x^2 + 1}}$ 
  - (a) Converge
  - (b) Diverge
  - (c) Can't tell with what we know
- 5. Does  $\int_2^\infty \frac{dx}{x^2-1}$ 
  - (a) Converge by direct comparison with  $\int_2^\infty (1/x^2) dx$

- (b) Diverge by direct comparison with  $\int_2^\infty (1/x^2) dx$
- (c) Can't tell by direct comparison with  $\int_2^\infty (1/x^2) dx$
- 6. Is this an improper integral?

$$\int_{1}^{\infty} \frac{\sin x}{x} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.
- 7. Is this an improper integral?

$$\int_{4}^{5} \frac{1}{x} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.
- 8. Is this an improper integral?

$$\int_0^1 \frac{1}{2 - 3x} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.
- 9. Is this an improper integral?

$$\int_{3}^{4} \frac{1}{\sin x} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.
- 10. Is this an improper integral?

$$\int_{-3}^{3} x^{-1/3} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.

11. Is this an improper integral?

$$\int_{1}^{2} \frac{1}{2x - 1} dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.
- 12. Is this an improper integral?

$$\int_{1}^{2} \ln(x-1) dx$$

- (a) Yes, it is improper.
- (b) No, it is proper.