Math 195 Quiz 2A
February 4, 2019

Name: ANSWERS

Instructions: No calculators! Answer all problems in the space provided! Do your rough work on scrap paper.

1. Expand and simplify:

   (a) $(a-b)^2 =$ $a^2-2ab+b^2$ (b) $(x+y)(a+b) =$ $ax+bx+ay+by$

   (c) $a(x+2) =$ $ax+2a$ (d) $(\sqrt{x}+3)^2 =$ $x+6\sqrt{x}+9$

2. Factor: $2x^3-2x^2-4x =$ $2x(x+1)(x-2)$

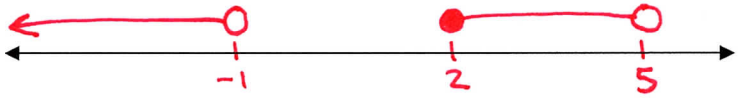
3. Simplify: $\dfrac{\frac{6}{x+1}-\frac{4}{x+2}}{\frac{5}{x+2}-\frac{3}{x+1}} =$ $\dfrac{2x+8}{2x-1}$ OR $\dfrac{2(x+4)}{2x-1}$

4. Simplify: $\dfrac{x^3+2x^2-25x-50}{x-5} =$ $(x+2)(x+5)$ (hint: factor the numerator)

5. Solve for x: $\dfrac{3}{2x}+\dfrac{1}{2x^2}=\dfrac{1}{x^3} \Rightarrow x =$ $-1;\ \frac{2}{3}$

6. Write the following statement in interval notation: "x is less than -1, or x is greater than or equal to 2 but less than 5". $(-\infty,-1)\cup[2,5)$

7. Sketch the above statement on the number line:



Bonus (after attempting the problems above, do these for extra credit):

1. Complete the rules:

   (a) $x^n \cdot x^m =$ x^{n+m} (b) $x^{-a} =$ $\dfrac{1}{x^a}$ (c) $x^{m/n} =$ $\sqrt[n]{x^m}$ (d) $\frac{x^n}{x^m} =$ x^{n-m}

2. Factor completely: $2x^{3/2}+4x^{1/2}-6x^{-1/2} =$ $2x^{-1/2}(x-1)(x+3)$

3. Simplify: $\dfrac{\sqrt{x+h}-\sqrt{x}}{h} =$ $\dfrac{1}{\sqrt{x+h}+\sqrt{x}}$