Precalculus 11 – Midterm Flashback #1

1. Evaluate $\left(\frac{25}{16}\right)^{-3/2}$ → $\left(\frac{16}{25}\right)^{3/2}$ → $\left(\sqrt{\frac{16}{25}}\right)^{3}$ → $\left(\frac{4}{5}\right)^{3}$ → $\frac{64}{125}$

2. Solve $\sqrt{4x-1}+2=10$. What are the restrictions on x?

$(\sqrt{4x-1})^2=(8)^2$

$4x-1=64$

$4x=65$

$x=\frac{65}{4}$

verify:

$\sqrt{4(\frac{65}{4})-1}+2=10$

$\sqrt{65-1}+2=10$

$\sqrt{64}+2=10$

$8+2\checkmark 10$

$4x-1\geq 0$

$4x\geq 1$

$x\geq \frac{1}{4}$

3. Factor: $6x^2+11x-21$

$6(21)$

126

$1\cdot 126$

$2\cdot 63$

$3\cdot 42$

$6\cdot 21$

$7\cdot 18$

	X	3
6x	$6x^2$	$+18x$
−7	$-7x$	-21

$(x+3)(6x-7)$

4. Simplify: $\frac{(8a^{-3}b)^2}{(4a^5b^{-3})^{-2}}$ → $\frac{64a^{-6}b^2}{4^{-2}a^{-10}b^6}$ → $\frac{64b^2\cdot 4^2\cdot a^{10}}{a^6\,b^6}$

→ $64\cdot 16\,a^4b^{-4}$ → $\frac{1024a^4}{b^4}$

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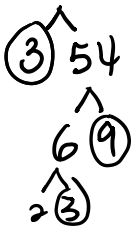
5. Simplify: $\sqrt{162}$ $= \sqrt{81 \cdot 2} = 9\sqrt{2}$



6. Rationalize: $\frac{6}{1+\sqrt{2}} \cdot \frac{1-\sqrt{2}}{1-\sqrt{2}} \rightarrow \frac{6-6\sqrt{2}}{1-\sqrt{2}+\sqrt{2}-\sqrt{4}}$

$\rightarrow \frac{6-6\sqrt{2}}{1-2} \rightarrow \frac{6-6\sqrt{2}}{-1} \rightarrow -6+6\sqrt{2}$

7. Simplify: $(3\sqrt{2}-\sqrt{5})^2+\sqrt{2}(\sqrt{2}+3\sqrt{5})$

$(3\sqrt{2}-\sqrt{5})(3\sqrt{2}-\sqrt{5}) + \sqrt{2}(\sqrt{2}+3\sqrt{5})$

$9\sqrt{4} - 3\sqrt{10} - 3\sqrt{10} + \sqrt{25} + \sqrt{4} + 3\sqrt{10}$

$18 \quad -6\sqrt{10} + 7 + 3\sqrt{10}$

$25 - 3\sqrt{10}$

8. Solve: $x^2+8x-10=9x$

$x^2 - x - 10 = 0$

$a=1$
$b=-1$
$c=-10$

b^2-4ac

$1-4(1)(-10)$

$1+40$

41

$\therefore x = \frac{-(-1) \pm \sqrt{41}}{2}$

$x = \frac{1 \pm \sqrt{41}}{2}$

9. All integers are whole numbers. True or false. Explain how you know.

False. -2 is an integer but not whole because whole numbers are positive.

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10. What is the discriminant for the equation $2x^2 - 5x = 9$? What does it tell you about the roots for this equation?

$2x^2 - 5x - 9 = 0$

$a = 2$

$b = -5$

$c = -9$

$b^2 - 4ac$

$25 - 4(2)(-9)$

$25 + 72$

97

positive → 2 roots

non-perfect # → irrational roots

Answers will be found on Mrs. Burton's Edublog >flashback page