Algebra 2 Practice Exam 2

1 $a : b$

$6 : 5$ ↘ ×6 $\quad 6-5=1$

$36 : 30 \quad 6 \div 1 = 6$

36 is the larger number

2 $\sqrt{\frac{7}{36}} + \sqrt{\frac{13}{39}}$

$\sqrt{\frac{7}{36}} + \sqrt{\frac{1}{3}}$

$\frac{\sqrt{7}}{6} + \frac{1}{\sqrt{3}}$

$\frac{\sqrt{7}}{6} + \frac{\sqrt{3}}{3}$

$\frac{\sqrt{7}}{6} + \frac{2\sqrt{3}}{6}$

$\frac{\sqrt{7}+2\sqrt{3}}{6}$ ✓

3 $\frac{\frac{2}{5}}{\frac{3}{8}} = \frac{\frac{x}{9}}{\frac{5}{3}}$

$\frac{2}{5} \div \frac{3}{8} = \frac{x}{9} \div \frac{5}{3}$

$\frac{16}{15} = \frac{3x}{45}$

$\frac{16}{15} = \frac{x}{15}$

$16 = x$ ✓

4 $\frac{1499-1200}{1499} = 19.947\%$ ✓

5 $\dfrac{(3x^3+x^2-10x)(x^2+x-12)}{(2x^2+3x-2)(3x^2+7x-20)}$

$\dfrac{x(3x-5)(x+2)(x-3)(x+4)}{(2x-1)(x+2)(3x-5)(x+4)}$

$\dfrac{x(x-3)}{2x-1}$ ✓

6 $\dfrac{c}{d}-\dfrac{a}{b}=\dfrac{e}{f}$

$\dfrac{c}{d}-\dfrac{e}{f}=\dfrac{a}{b}$

$\dfrac{b}{a}=\dfrac{d}{c}-\dfrac{f}{e}$

$b=a\left(\dfrac{d}{c}-\dfrac{f}{e}\right)$ ✓

7 $\log(8x)+3\log(x)-\log(2x^2)$

$\log(8x)+\log(x^3)-\log(2x^2)$

$\log\left(\dfrac{8x^4}{2x^3}\right)$

$\log(4x^2)$ ✓

8 $4i^5-\sqrt{-9}+4i^7-12i^4+\sqrt{-16}-7i^6+5i^2$

$4i-3i-4i-12+4i+7-5$

$i-10$ ✓

9 $ut=24$

$10u+t=10t+u+45$

$(10u+t)-(10t+u+45)=0$

$9u-9t-45=0$

$u-t=5$

$t=u-5$

$u(u-5)=24$

$u^2-5u-24=0$

$(x-8)(x+3)=0$

$x-8=0 \qquad x+3=0$

$x=8 \qquad x=-3$

$t = (8) - 5$

$t = 3$

$\therefore$ 38 ✓

10 $\sqrt{5+4x} - x = 0$

$\sqrt{5+4x} = x$

$x^2 = 5 + 4x$

$x^2 - 4x - 5 = 0$

$(x-5)(x+1) = 0$

$x - 5 = 0$ $\qquad$ $x + 1 = 0$

$x = 5$ ✓ $\qquad$ $x = -1$

$x \neq -1$

11 $x^2 + (y-2)^2 = 4^2$

$x^2 + y^2 - 4y + 4 - 16 = 0$

$x^2 + y^2 - 4y - 12 = 0$ ✓

12 $c = 40$ $\qquad$ $a = 60$

$c + a = 24000 \rightarrow a = 24000 - c$ $\qquad$ $T = 40c + 60a$

$40c + 60(2400 - c) = T$

$40c + 144000 - 60c = T$

$T = -20c + 144000$

$20c = 144000 - T$

$c = 7200 - \frac{T}{20}$ ✓

100%