Irrational Numbers Exam

A. Simplify the following:

1. $\sqrt{64x^2}$ 2. $\sqrt{27x^3}$ 3. $\sqrt{2016}$ 4. $\sqrt{5x^7y^{12}}$

5. $3\sqrt{7} \bullet 5\sqrt{11}$ 6. $2\sqrt{15} \bullet 3\sqrt{45}$ 7. $\sqrt{xy^3} \bullet \sqrt{x^5y^4}$

8. $3x\sqrt{2x^3y^5} \bullet 2y\sqrt{8x^3y^4}$ 9. $4xz\sqrt{x^4y^3} \bullet 5y^2\sqrt{18x^3y^5z^6}$

10. $2\sqrt{3}\left(4+\sqrt{2}\right)$ 11. $\left(3-5\sqrt{3}\right)^2$ 12. $\left(2+3\sqrt{7}\right)\left(5-\sqrt{3}\right)$

13. $\dfrac{5}{\sqrt{3}}$ 14. $\dfrac{3\sqrt{2}}{5\sqrt{5}}$ 15. $\dfrac{3+2\sqrt{7}}{4\sqrt{5}}$

16. $2\sqrt{x}+4\sqrt{x}-9\sqrt{x}$

17. $3\sqrt{5}-2\sqrt{7}+6\sqrt{5}+11\sqrt{7}$

18. $6\sqrt{27}-8\sqrt{75}$

19. $3x\sqrt{5y^3}-2y\sqrt{125x^2y}$

20. $\dfrac{5}{2+\sqrt{6}}$

21. $\dfrac{4\sqrt{6}}{2-3\sqrt{3}}$