BECA / Huson / 11.1 IB Math SL Name:
24 October 2017

Homework: Exponents and radicals

Do these problems without a calculator. Use algebra properties to simplify each expression.

Exponent rules

1. $3x^2 \times 2x^4y^2$
2. $\frac{1}{2}(xy^2) \times \frac{2}{3}(x^2y)$
3. $(a^2b^3)(ab^3)$
4. $x^3 \div x^3$
5. $4y^5 \div (2y)^2$
6. $(x^5)^2$
7. $(-a^2)^3$

Fractional and negative exponents

8. $16^{\frac{1}{2}}$
9. $27^{\frac{1}{3}}$
10. $125^{\frac{2}{3}}$
11. $(\frac{4}{9})^{\frac{3}{2}}$
12. 2^{-4}
13. $9^{-\frac{3}{2}}$
14. $(\frac{27}{8})^{-\frac{4}{3}}$

Radicals and exponents

Simplify, leaving no negative or fractional exponents.

15. $(9x^2)^{\frac{1}{2}}$
16. $\sqrt{25y^{-4}}$
17. $\frac{x\sqrt{25x}}{x^{0.5}}$
18. $\sqrt[3]{\frac{y^6}{x^{-9}}}$

19. Let $f(x) = 0.5x^2 + 5x - 8$, for $0 \leq x \leq 9$.

(a) On the grid below, sketch the graph of f.

(b) Consider the graph of f . Write down

i. the two x-intercepts;

ii. the equation of the axis of symmetry;

iii. the vertex as an ordered pair.