A.SSE.A.2: Factoring the Difference of Perfect Squares 4

1 Factored completely, the expression $16\tan\theta - \tan^3\theta$ is equivalent to
1) $\tan\theta(4-\tan\theta)^2$
2) $\tan\theta(\tan\theta-4)^2$
3) $\tan\theta(4-\tan\theta)(4+\tan\theta)$
4) $\tan\theta(\tan\theta+4)(\tan\theta-4)$

2 Factor completely: $\tan^3 x - 9\tan x$

3 Factor: $1-\frac{1}{x^2}$

4 Factor the expression $12t^8 - 75t^4$ completely.

5 Factor: $x^4-(x-6)^2$

6 Factor: x^8-1

7 Factor: x^8-16

8 Factor: a^4+a^2+1

9 Factor: x^4+4x^2+16

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Answer Section

1 ANS: 3
$16\tan\theta - \tan^3\theta = \tan\theta(16 - \tan^2\theta) = \tan\theta(4 - \tan\theta)(4 + \tan\theta)$

REF: 081602a2

2 ANS:
$\tan x(\tan x + 3)(\tan x - 3)$

REF: 089916siii

3 ANS:
$\left(1 + \frac{1}{x}\right)\left(1 - \frac{1}{x}\right)$

REF: 039404al

4 ANS:
$12t^8 - 75t^4 = 3t^4(4t^4 - 25) = 3t^4(2t^2 + 5)(2t^2 - 5)$

REF: 061133a2

5 ANS:
$(x^2 - x + 6)(x + 3)(x - 2)$

REF: 039005al

6 ANS:
$(x^4 + 1)(x^2 + 1)(x + 1)(x - 1)$

REF: 019506al

7 ANS:
$(x^4 + 4)(x^2 + 2)(x^2 - 2)$

REF: 099403al

8 ANS:
$(a^2 + a + 1)(a^2 - a + 1)$

REF: 069707al

9 ANS:
$(x^2 + 2x + 4)(x^2 - 2x + 4)$

REF: 069404al