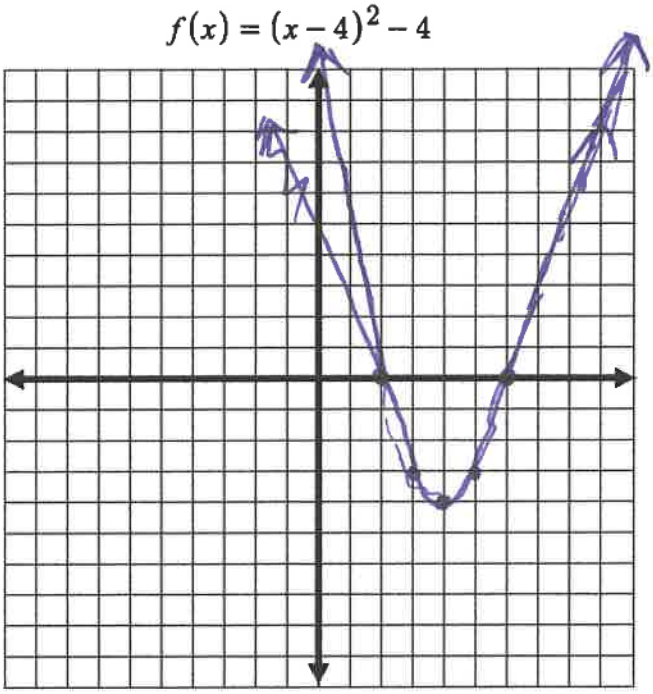
Algebra 2 skills check

Graph the following quadratic function without a calculator

$f(x) = (x-4)^2 - 4$



a. State the domain & range of the function and describe its end behavior

Domain: $(-\infty, \infty)$

range: $[-4, \infty)$ or $\mathbb{R} \geq -4$

b. What are the coordinates of the vertex of the function

$(4, -4)$

c. What is/are the coordinate(s) of the x intercept(s) of the function

$(2,0)$ and $(6,0)$

d. What is/are the coordinate(s) of the y intercept(s) of the function

$(x-4)^2 - 4$ → plug in 0 for x $(0-4)^2 - 4$

$(-4)^2 - 4$ → $16 - 4 = 12$

$(0, 12)$

e. Describe the transformations present for this function compared to the parent function

Translation 4 units right + 4 units down

Algebra 2 skills check

Solve the following equations by factoring

1) $x^2 - 11x + 19 = -5$

$x^2 - 11x + 24 = 0$

$(x-8)(x-3) = 0$ → $x = 8, 3$

2) $7r^2 - 14r = -7$

$7r^2 - 14r + 7 = 0$

$7(r^2 - 2r + 1) = 0$

$(r-1)(r-1) = 0$ → $r = 1$

3) $3x^2 - 8x + 4 = 0$

$3x^2 - 6x - 2x + 4 = 0$

$3x(x-2) - 2(x-2) = 0$

$(3x-2)(x-2) = 0$ → $x = \frac{2}{3}, 2$

Solve the following equations (use any method)

4) $5 = \sqrt{r-3}$ → $25 = r - 3$

$28 = r$

5) $\frac{3}{4}x + \frac{3}{2}x = \frac{9}{4}$ → $\frac{3}{4}x + \frac{6}{4}x = \frac{9}{4}$

$\frac{9}{4}x = \frac{9}{4}$

$x = 1$

6) $x^3 + 5x^2 - 6x - 30 = 0$

$x^2(x+5) - 6(x+5) = 0$

$(x^2 - 6)(x+5) = 0$ → $x = \pm\sqrt{6}, -5$

7) Simplify the following expression $\sqrt{96}$

$4\sqrt{6}$