

1. Simplify each of the following.

a) $\sqrt{48} - 2\sqrt{75} + 5\sqrt{12}$

d) $(\sqrt{5} + 4)(\sqrt{5} - 2)$

g) $\frac{3}{m+5} - \frac{4m+2}{4m+m^2-5}$

b) $\frac{\sqrt{200}}{\sqrt{8}}$

e) $(\sqrt{6+\sqrt{11}} + \sqrt{6-\sqrt{11}})^2$

h) $x(3-2x) - (2x-1)^2$

c) $\sqrt{3}(\sqrt{3}-1)$

f) $\frac{50-2x^2}{x^2-4x-5}$

2. Compute the exact value of $2x^2 - 5x + 1$ if $x = 3\sqrt{2} - 1$.

3. Simplify each of the following.

a) $3(4)^2$

b) $(3 \cdot 4)^2$

c) $3(x-2)^2$

d) $(3x-6)^2$

e) Based on the previous problems, write a number in the box to make the statement shown below true.

$$(5a-10)^2 = (5(a-2))^2 = \boxed{}(a-2)^2$$

4. Simplify each of the following.

a) $(2^{-1} \cdot 5^{-1})^{-1}$

b) $(2^{-1} - 5^{-1})^{-1}$

c) $\frac{(2ab^3)^{-2}(-3a^2b^{-2})^{-3}}{(-2a^3b^0)^{-4}}$

d) $\left(\frac{-2x^{-3}y^2x^0}{3yx^{-2}}\right)^{-2}$

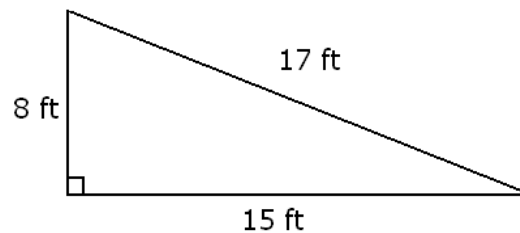
5. Solve the following equations. Make sure to check your solutions.

a) $x^3 = 12x^2 + 3213x$

b) $x^3 - 2x^2 - 35x = 0$

c) $2x^2 - 32x = 0$

6. Consider the right triangle shown on the picture below.



a) Compute the perimeter of the triangle. Include units in your computation and answer.

b) Compute the area of the triangle. Include units in your computation and answer.