

Instructions: Show all work. Give exam answers.

1. Factor completely.

a. $4x^2 - x - 5$

$$(4x - 5)(x + 1)$$

b. $125 - 8y^3$

$$(5 - 2y)(25 + 10y + 4y^2)$$

c. $4x^2 - 2xy - 7yz + 14xz$

$$2x(2x - y) - 7z(y - 2x)$$

$$2x(2x - y) + 7z(2x - y)$$

$$(2x - y)(2x + 7z)$$

2. Solve by factoring.

a. $x^2 + 2x - 8 = 0$

$$(x + 4)(x - 2) = 0$$

$$x = -4, x = 2$$

b. $4y^3 - 36y = 0$

$$4y(y^2 - 9) = 0$$

$$4y(y - 3)(y + 3) = 0$$

$$y = 0, y = 3, y = -3$$

d. $x^2 + 14x - 32$

$$(x + 16)(x - 2)$$

e. $4t^2 + 49$

prime

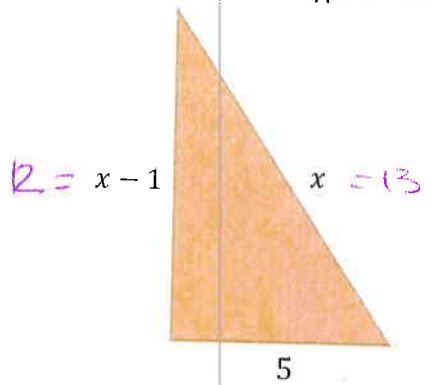
c. $x^2 = 16$

$$x^2 - 16 = 0$$

$$(x - 4)(x + 4) = 0$$

$$x = \pm 4$$

3. Find the length of the hypotenuse.



$$\begin{aligned}(x-1)^2 + 5^2 &= x^2 \\ \cancel{x^2} - 2x + 1 + 25 &= \cancel{x^2} \\ -2x + 26 &= 0 \\ \frac{26}{2} &= \frac{2x}{2} \\ \boxed{13 = x}\end{aligned}$$