

3.3 HW

1. Fill in the blank with the correct response.

- a) The expression $2x^2$ is called a Monomial
- b) In the term $-5x^2$, the coefficient is -5, and the exponent is 2
- c) The number of terms in the expression $7x^3 - 5x^2 - 1$ is 3

2. For each polynomial, write the number of terms, and name the coefficient of each term.

- a) $3x^4$ 1, 3
- b) $5x^4 + 3x$ 2, 5, 3
- d) $-5y^3$ 1, -5
- e) $\sqrt{3}x + \frac{2}{3}x - 6$ 3, $\sqrt{3}$, $\frac{2}{3}$, -6

3. Determine whether each expression is a polynomial.

- a) 3^{-4} ✓
- b) $\frac{1}{x} + 1$ ✗
- c) $\frac{\sqrt{2}}{3x}$ ✗
- d) $\frac{3x}{\sqrt{5}}$ ✓
- e) $\frac{2x}{5} - 3^{-1}$ ✓
- f) $\frac{2}{x^2 - 2x + 1}$ ✗
- g) $\sqrt{2}x - 1$ ✓
- h) x^{-4} ✗

4. Classify each polynomial as a monomial, binomial or trinomial; if none of those, then polynomial.

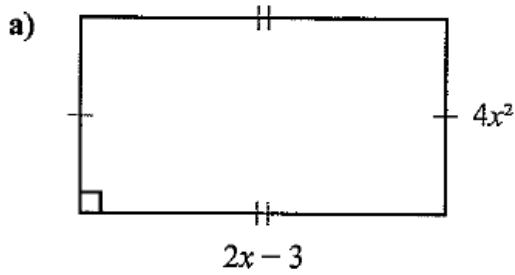
- a) $2x + 3$ B
- b) $x^2 - 5x + 1$ T
- c) $3x^2yz$ M
- d) $6x^4 - 3x^2 + x - 1$ P
- e) $3xy^2 - 5xz$ B
- f) $\sqrt{3}x - \frac{2}{3}x + 1$ T

5. Determine the product.

- a) $2x^2(5x^3)$
 $= 10x^5$
- b) $(3xy)(-2x^2y^4)$
 $= -6x^3y^5$
- c) $(xy)(2x^2y)(-3xy^3)$
 $= 2x^3y^2(-3xy^3)$
 $= -6x^4y^5$
- d) $3x(-3x^2 + 2x)$
 $= -9x^3 + 6x^2$
- e) $(2x)(3x)(3x - 5x^2 + 1)$
 $= 6x^2(3x - 5x^2 + 1)$
 $= 18x^3 - 30x^4 + 6x^2$
- f) $(x^2y)(xy - 3xy^2 + 5x^3y^4)$
 $= x^3y^2 - 3x^3y^3 + 5x^5y^5$

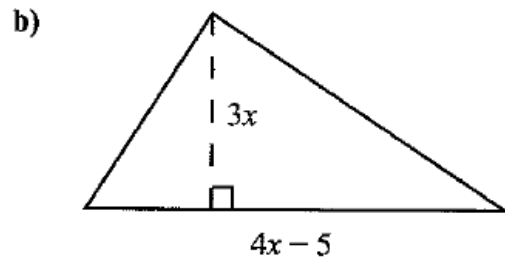
6.

Find the area of each figure.



$$4x^2(2x-3)$$

$$= 8x^3 - 12x^2$$

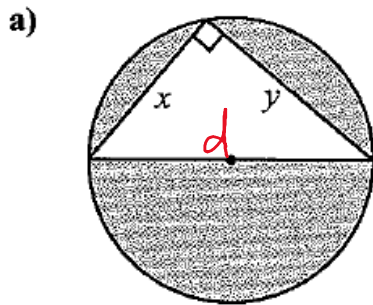


$$\frac{(4x-5)(3x)}{2}$$

$$= \frac{12x^2 - 15x}{2}$$

7.

Determine the area of the shaded region in terms of x , y and π .



$$A_{\text{circle}} = x^2 + y^2 = d^2$$

$$d = \sqrt{x^2 + y^2}$$

$$r = \frac{\sqrt{x^2 + y^2}}{2}$$

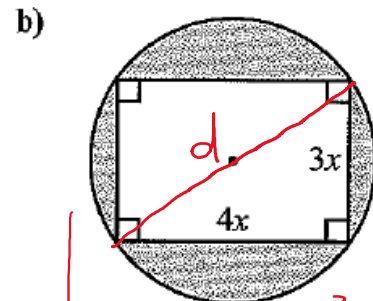
$$\pi(r^2) = \pi\left(\frac{\sqrt{x^2 + y^2}}{2}\right)^2$$

$$= \pi\left(\frac{x^2 + y^2}{4}\right)$$

$$A_{\text{triangle}} = \frac{x \cdot y}{2}$$

$$A_{\text{shaded}} = A_{\text{circle}} - A_{\Delta}$$

$$= \pi\left(\frac{x^2 + y^2}{4}\right) - \frac{xy}{2}$$



$$(3x)^2 + (4x)^2 = d^2$$

$$9x^2 + 16x^2 = d^2$$

$$25x^2 = d^2$$

$$d = \sqrt{25x^2} = 5x$$

$$r = \frac{5x}{2}$$

$$A_{\text{circle}} = \pi r^2 = \pi\left(\frac{5x}{2}\right)^2 = \pi\left(\frac{25x^2}{4}\right)$$

$$A_{\square} = (3x)(4x) = 12x^2$$

$$A_{\text{shaded}} = \frac{25\pi x^2}{4} - 12x^2$$