1. Solve: $\dfrac{1}{2}x + \dfrac{6}{10} = \dfrac{3}{5}x + \dfrac{2}{5}$
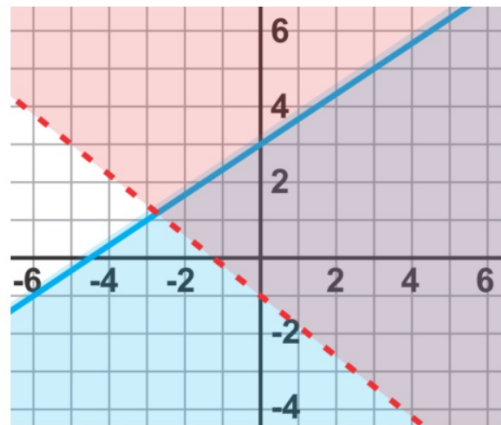
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2. The length of a rectangle is three less than two times its width. If the width is increased by 4, the new rectangle has a perimeter of 32 inches. What is the width of the new rectangle?

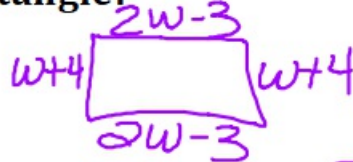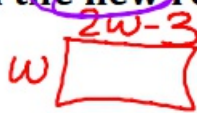## 3. Which of the following would be a solution for the graph shown?

A.(0,-1)

B.(-3,1)

C.(0,3)

D. All of the above

1. Solve: $(10)\dfrac{1}{2}x + \overset{(10)}{\dfrac{6}{10}} = \overset{(p)}{\dfrac{3}{5}}x + \dfrac{2}{5}{}^{(10)}$

$5x + 6 = 6x + 4$

$-6x \qquad\quad -6x$

$-x + 6 = 4$

$-6 \quad -6$

$\dfrac{-x}{-1} = \dfrac{-2}{-1}$

$\boxed{x = 2}$

2. The length of a rectangle is three less than two times its width. If the width is increased by 4, the new rectangle has a perimeter of 32 inches. What is the width of the new rectangle?

$2w-3$
w ☐

$2w-3$
$w+4$ ☐ $w+4$
$2w-3$

$5 + 4 = \boxed{9in}$

$6w + 2 = 32$
$-2 \quad -2$
$\dfrac{6w}{6} = \dfrac{30}{6}$
$w = 5$

hich of the following
ld be a solution for the
h shown?

~~A.(0,-1)~~
~~B.(-3,4)~~
C.(0,3)
~~D. All of the above~~

$y > -\dfrac{4}{5}x - 1$
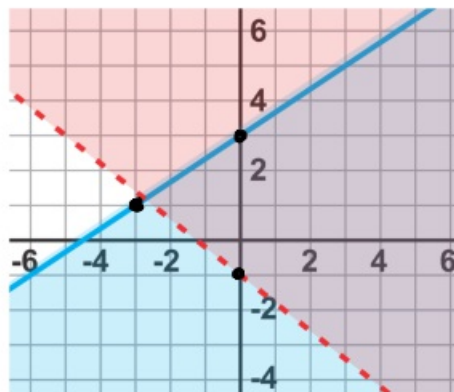
Negative Exponents

Negative exponents can be rewritten using positive exponents using the **Negative Exponent Rule**

$$x^{-a} = \frac{1}{x^a}$$

Directions: Rewrite each expression using positive exponents.

1. x^{-5}

$$\frac{1}{x^5}$$

2. $3m^{-2}$

$$\frac{3}{m^2}$$

3. $-7a^{-4}b^3$

$$\frac{-7b^3}{a^4}$$

5. $4c^8d^{-3} \cdot 5c^{-5}d^{-1}$

$$20c^3d^{-4}$$

$$\frac{20c^3}{d^4}$$

7. $(a^{-5}b^8c^{-12})(a^7b^{-3}c^7)$

$$a^2b^5c^{-5} = \frac{a^2b^5}{c^5}$$

$8^2 = 64$

$8^{-2} = \frac{1}{64}$

8. $(8p^5)^{-2}$

$$\frac{1p^{-10}}{64} = \boxed{\frac{1}{64p^{10}}}$$

11. $(6x^5y^{-4})^{-2}$

$$\frac{1x^{-10}y^8}{36}$$

$$\boxed{\frac{y^8}{36x^{10}}}$$

12. $\dfrac{h^2}{h^5}$

$$\frac{h \cdot h}{h \cdot h \cdot h \cdot h \cdot h}$$

$$\frac{1}{h^3}$$

13. $\dfrac{c^2 d^{-1}}{c^7 d^{-2}}$

$\dfrac{d^2}{c^7 c^2 d}$

$\boxed{\dfrac{d}{c^9}}$

15. $\dfrac{-10m^2 n}{2m^3 n^{-5}}$

$\dfrac{-10m^2 n n^5}{2m^3}$

$\boxed{\dfrac{-5n^6}{m}}$

18. $\dfrac{-4pq^5 r^3}{8p^2 q^2 r^{10}}$

$\dfrac{-1 q^3}{2Pr^7}$

$\boxed{\dfrac{-q^3}{2Pr^7}}$

20. $(4x^3 y^6)^{-2} + (2x^2 y^4)^{-3}$

$\dfrac{1 x^{-6} y^{-12}}{16} \qquad \dfrac{1 x^{-6} y^{-12}}{8}$

$\dfrac{1}{16x^6 y^{12}} + \dfrac{1}{8x^6 y^{12}}$

$\dfrac{1}{16x^6 y^{12}} + \dfrac{2}{16x^6 y^{12}}$

$\boxed{\dfrac{3}{16x^6 y^{12}}}$

22. $\dfrac{(6a^3)(5a^9)}{-12a^{14}}$

$\dfrac{30a^{12}}{-12a^{14}}$

$\boxed{\dfrac{-15}{6a^2}}$

23. $\dfrac{(3xy)^2(2x^4y^3)}{6x^8y}$

24. $\dfrac{(-6x^4y^6)^2}{(-4x^{-3}y^5)^3}$

$(9x^2y^2)(2x^4y^3)$

$\dfrac{36x^8y^{12}}{-64x^{-9}y^{15}}$

$\dfrac{18x^6y^5}{6x^8y}$

$-\dfrac{9x^{17}}{16y^3}$

$\dfrac{3y^4}{x^2}$

Dividing Polynomials by Monomials

Dividing Polynomials by Monomials

Step 1: Divide each by simplifying the coefficents and subtract the exponents of the like bases.

Step 2: Simplify any negative exponents.

Example:

$$\frac{3x^2y - 12xy - 15y^2}{3xy}$$

$$\frac{3x^2y}{3xy} \qquad \frac{-12xy}{3xy} \qquad \frac{-15y^2}{3xy}$$

$$\boxed{X - 4 - \frac{5y}{X}}$$

$$\frac{5x^4y^5 + 10x^3y^3 - 20x^2y^3}{30xy^3}$$

$$\frac{5x^4y^5}{30xy^3} \qquad \frac{10x^3y^3}{30xy^3} \qquad \frac{-20x^2y^3}{30xy^3}$$

$$\frac{x^3y^2}{6} + \frac{x^2}{3} - \frac{2x}{3}$$

You Try:

1. $$\dfrac{16xy + 4x^2y^4 - 8xy}{2xy}$$

$$\cancel{8} + 2xy^3 \cancel{-4}$$

$$\boxed{2xy^3 + 4}$$

$$2. \quad \frac{15a^5b^6 - 3ab + 9b^4}{3ab}$$

$$5a^4b^5 - 1 + \frac{3b^3}{a}$$

$$\boxed{5a^4b^5 + \frac{3b^3}{a} - 1}$$

Mixed Review

Simplify:

1. $4(2a^4bc^2)^4 (-3a^2b^6c)^2$

2. $\dfrac{-12x^3 + 8x^2 - 4x}{2x}$

3. $(-2x^4 - 5x^2 + 14x) + (6x^4 - 3x^2 + 1)$

4. $(-10x^2 + 6x - 14) - (7x^2 - 3x + 5)$