Write in a neat and organized fashion. You should use a pencil. For an exercise to be complete there needs to be a detailed solution to the problem. Do not just write down an answer. No proof, no credit given.

1. Simplify:

(a) $17 - |5 - (-2)| + 12 \div 2 \cdot 3 =$ (1.5 points)

$= 17 - |5+2| + 6 \cdot 3$

$= 17 - |7| + 18$

$= 17 - 7 + 18$

$= 10 + 18$

$= \boxed{28}$

(b) $7 - 4[3 - (4x - 5)] =$ (1.5 points)

$= 7 - 4(3 - 4x + 5)$

$= 7 - 4(8 - 4x)$

$= 7 - 32 + 16x$

$= \boxed{-25 + 16x}$

2. Simplify each expression. Write the answer using positive exponents only.

(a) $\left(3x^{-1}y^3\right)^2 =$ (2 points)

$= 3^2 (x^{-1})^2 (y^3)^2$

$= 9 \, x^{-2} y^6$

$= 9 \cdot \frac{1}{x^2} y^6$

$= \boxed{\dfrac{9y^6}{x^2}}$

(b) $\left(\dfrac{a^{-4}b^3c^5}{a^{-5}b^{-2}c}\right)^{-2} =$ (2 points)

$= \left(a^{-4-(-5)} \; b^{3-(-2)} \; c^{5-1}\right)^{-2}$

$= \left(a \, b^5 c^4\right)^{-2} = \dfrac{1}{(ab^5c^4)^2}$

$= \dfrac{1}{a^2 (b^5)^2 (c^4)^2}$

$= \boxed{\dfrac{1}{a^2 b^{10} c^8}}$

3. Solve each equation.

(a) $\dfrac{5}{6} = \dfrac{2u-3}{5}$ (2 points)

CROSS-PRODUCT PROPERTY

$5 \cdot 5 = 6 (2u - 3)$

$25 = 12u - 18$

$25 + 18 = 12u$

$43 = 12u$

$\boxed{u = \dfrac{43}{12}}$

(b) $2 - (7y + 5) = 13 - 3y$ (2 points)

$2 - 7y - 5 = 13 - 3y$

$-3 - 7y = 13 - 3y$

$-3 - 13 = -3y + 7y$

$-16 = 4y$

$y = \dfrac{-16}{4}$

$\boxed{y = -4}$

(c) $ax + by = c$ solve for y.   (2 points)

$by = c - ax$

$\boxed{y = \dfrac{c - ax}{b}}$

(d) $\dfrac{3a}{5} = \dfrac{2a}{3} + 1$ (2 points)

$\overset{3/}{3a} \quad \overset{5/}{2a} \quad \overset{15/}{}$

$LCD = 15$

$9a = 10a + 15$

$9a - 10a = 15$

$-a = 15$

$\boxed{a = -15}$