

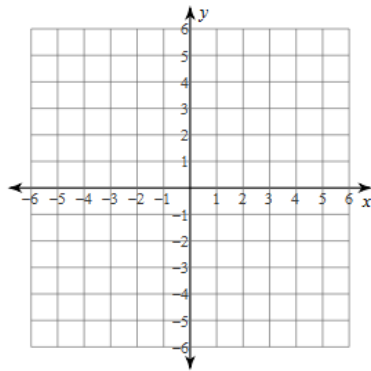
Name \_\_\_\_\_

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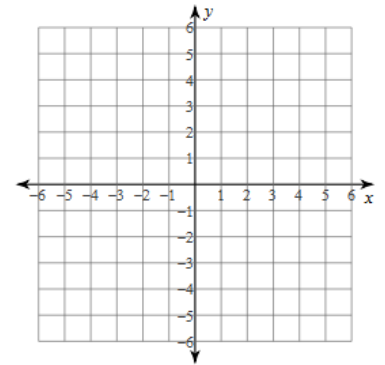
# Intermediate Algebra Summer Review Packet

Graph the following:

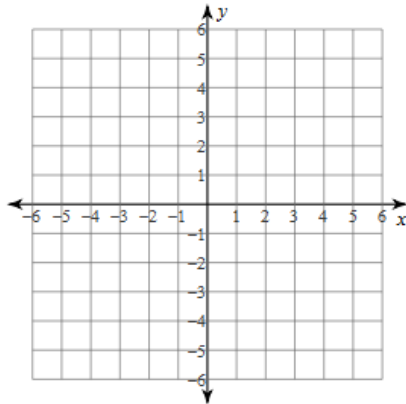
1)  $2x + 5y = 10$



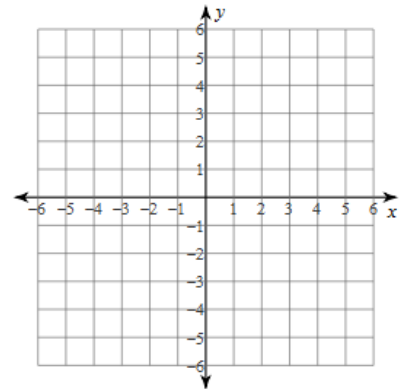
2)  $y > \frac{2}{5}x + 3$



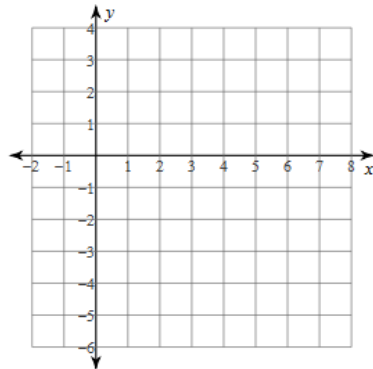
3)  $y = x + 3$   
 $y = -1$



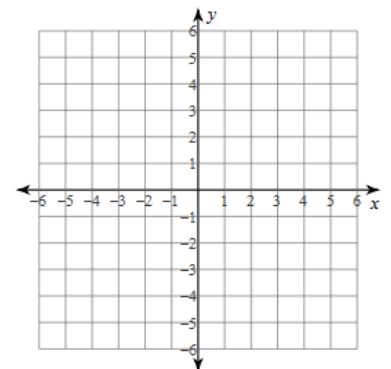
4)  $y \leq -\frac{5}{2}x + 2$   
 $y < -\frac{1}{2}x - 2$



5)  $f(x) = -2x^2 + 12x - 15$



6)  $f(x) = |x| + 1$



Simplify. Your answer should contain only positive exponents.

7)  $xy^3 \times 4xy^4$

8)  $\frac{2yx^2}{4x^0y^3}$

9)  $(3a^4b^{-2})^{-3}$

10)  $\left(\frac{2a^{-2}b^{-3} \times ab^{-2}}{ab^{-3}}\right)^{-4}$

**Solve the System of Equations by:**

<b>11) Substitution</b> $-x + 5y = 0$ $x - 4y = 1$	<b>12) Elimination</b> $4x + y = -3$ $2x - 7y = 21$
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**Solve the quadratic equations by Factoring:**

<b>13)</b> $x^2 - 32 = 4x$	<b>14)</b> $4x^2 + 4x = 168$
<b>15)</b> $(x^2 - 16) = 0$	<b>16)</b> $4x^3 + 12x^2 - x - 3 = 0$

**Solve the quadratic equations by the Square Root Method: (you may round to the hundredth's place if necessary).**

<b>17)</b> $2 - 4x^2 = -35$	<b>18)</b> $5x^2 - 7 = 173$
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**Solve the quadratic equations by Completing the Square:**

<b>19)</b> $x^2 + 20x + 83 = -8$	<b>20)</b> $x^2 + x - 29 = 6$
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Solve the quadratic equations by using the Quadratic Formula:  $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$  (you may round to the hundredth's place if necessary).

21)  $9x^2 + 5x = 16$

Add or Subtract the rational expressions:

22)  $\frac{6x}{2} + \frac{2}{2x-8}$

23)  $\frac{4}{x+1} - \frac{3x}{x-2}$

Simplify each and state the excluded values:

24)  $\frac{x^2 - 3x - 40}{x - 8}$

25)  $\frac{x - 10}{2x^2 - 20x}$

Simplify each expression:

26)  $\frac{6x}{8x-80} \times \frac{8x-40}{6x}$

27)  $\frac{x^2 + 9x + 18}{56x + 16} \times \frac{14x + 4}{2x + 12}$

28)  $\frac{x^2 - 2x - 35}{x - 7} \div \frac{x + 5}{9}$

29)  $\frac{8x^3 + 64x^2}{8x^2} \div \frac{x^2 + 6x - 16}{2}$

Solve each equation. Remember to check for extraneous solutions:

30)  $\frac{x-5}{3x} = \frac{1}{x} - \frac{5}{3}$

31)  $\frac{x+6}{x+5} - \frac{x^2}{x^2-x-30} = \frac{1}{x-6}$

**Simplify the radical expressions:**

32) $\sqrt{72xy^2}$	33) $\sqrt{36x^3y^2}$
34) $\sqrt{28x^3y^4}$	35) $\sqrt{147x^4y}$

**Multiply the radical expressions. Simplify, if possible.**

36) $2\sqrt{5}(\sqrt{6} + \sqrt{10})$	37) $(-5\sqrt{2} + 4)(-5\sqrt{2} - 4)$
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**Simplify:**

38) $-2\sqrt{20} - \sqrt{5} + 2\sqrt{24}$	39) $-2\sqrt{5} - \sqrt{5} - 2\sqrt{18}$
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**Simplify: (Remember: No radicals in the denominator)**

40) $\frac{5}{\sqrt{3}}$	41) $\frac{\sqrt{3}}{\sqrt{5x}}$
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**Solve each equation. Remember to check for extraneous solutions.**

42) $6 = \sqrt{x+5}$	43) $\sqrt{6x+1} = \sqrt{x+6}$
44) $x = \sqrt{30-x}$	45) $\sqrt{n-2} = n-4$