Exam #1

1 (2 points) Simplify the expression below without a calculator. Show each step.

\[ 18 + 2[(41 - 8) - (5 + 3^2)] \]

\[ 18 + 2[33 - (5 + 9)] \]

\[ 18 + 2[33 - 14] \]

\[ 18 + 2[19] \]

\[ 18 + 38 = 56 \]

2 (1 points) Kris wanted to calculate \(\frac{20 + 10}{5}\) on his calculator. The box below shows his calculator screen. He knows the answer he got isn’t right. What did Kris do wrong on the calculator? How should he fix it?

He needs to use parentheses if he wants 20 + 10 to be divided by 5; type:

\[ \frac{20 + 10}{5} \]

3 (1 points) Expand \(-4(5b - 9)\).

\[-20b + 36\]

4 (1 points) Factor \(24x - 36y\).

\[12(2x - 3y)\]

5 (2 points) Simplify the expression \(3(x + 4) - 2(1 - x)\) by expanding it and then combining like terms.

\[3x + 12 - 2 + 2x\]

\[5x + 10\]
6 (4 points) The figure below shows several points plotted on a coordinate plane. Write down the coordinates for each point.

A: $(3, 4)$
B: $(-1, 2)$
C: $(5, -4)$
D: $(-5, -3)$

7 (1 point) Let $f(x) = -3x + 1$. Find $f(2)$.

$$f(2) = -3(2) + 1$$

$$= -6 + 1$$

$$= -5$$

8 (3 points) Let $y = 1 + x^2$. Fill in the values in the table below, and then use those values to plot points on the coordinate plane at right. Do not connect the dots.

<table>
<thead>
<tr>
<th>$x$</th>
<th>$y$</th>
</tr>
</thead>
<tbody>
<tr>
<td>-2</td>
<td>5</td>
</tr>
<tr>
<td>-1</td>
<td>2</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

9 (2 points) Solve the equation $\frac{x}{2} + 3 = 1$.

$$\frac{x}{2} = -2$$

$$x = -4$$
10 (2 points) Solve the equation $\frac{2x+1}{4} = 1$.

\[
2x+1 = 4 \\
2x = 3 \\
x = \frac{3}{2}
\]

11 (2 points) Solve the equation $3(x + 1) = 2(x - 4)$.

\[
3x + 3 = 2x - 8 \\
x + 3 = -8 \\
x = -11
\]

12 (2 points) The area of the triangle shown below is 12 $cm^2$. Find the value of $x$ from the figure by setting up an equation to solve for $x$. Then solve for $x$.

\[
A = \frac{1}{2}bh \\
12 = \frac{1}{2} (2x-1)(3) \\
24 = (2x-1)(3) \\
8 = 2x - 1 \\
9 = 2x \\
\frac{9}{2} = x
\]
13 (2 points) Laura got a 90% on the first midterm, an 85% on the second midterm, and an 80% on the final exam in her Gardening class. If the syllabus says that the midterms are each worth 30% and the final exam is worth 40% of the overall grade, what will Laura’s overall percentage be for that course?

\[
\frac{(90)(30) + (85)(30) + (80)(40)}{100} = \frac{8450}{100} = 84.5
\]

14 (1 point) The cost of a taxi ride is $3.50 plus $2.00 per mile. Write down an equation with a variable \( x \) that says the total cost of a taxi ride is $17. Do not solve for \( x \). Just set up the equation.

\[
3.50 + 2.00x = 17
\]

15 (2 points) The syllabus for a Spokesmodeling class says that the midterm is worth 35% of the grade, and the final exam is worth 65% of the grade. If SanDeE got a score of 80% on the midterm, what score does she need on the final exam to get a 75% overall? (Don't round your answer) Round your answer to the nearest whole percent.

\[
\frac{(80)(35) + (x)(65)}{100} = 75
\]

\[
2800 + 65x
\]

\[
\frac{2800 + 65x}{100} = 75
\]

\[
2800 + 65x = 7500
\]

\[
65x = 4700
\]

\[
\boxed{x \approx 72}
\]