# Math 135 – Test 1

**January 25, 2019** **Name:** Solution Set
**Instructor: Patricia Wrean**

**No calculators are allowed for this test.** **Total: 30 points**

**Part I:** For these short-answer questions, you do not need to show any work. Place your final answer in the space provided. Each answer is worth one point.

1. (1 point) Simplify $\frac{20}{35}$. 4/7

$\frac{20}{35} = \frac{5 \times 4}{5 \times 7} = \frac{4}{7}$

2. (1 point) Write $3\frac{5}{8}$ as an improper fraction. 29/8

$3\frac{5}{8} = \frac{24}{8} + \frac{5}{8} = \frac{29}{8}$

3. (2 points) Multiply or divide, as indicated. Simplify when possible.

(a) $\frac{9}{8} \times \frac{4}{3} = \frac{3 \times 3 \times 4}{2 \times 4 \times 3} = \frac{3}{2}$ 3/2 (or 1½)

(b) $\frac{7}{9} \div \frac{2}{9} = \frac{7}{9} \times \frac{9}{2} = \frac{7}{2}$ 7/2 (or 3½)

4. (1 point) Write $\frac{17}{20}$ as a decimal. 0.85

$\frac{17}{20} = \frac{17}{20}\left(\frac{5}{5}\right) = \frac{85}{100} = 0.85$

or

$$\begin{array}{r} .85 \\ 20\overline{)17.0} \\ 160 \\ \hline 100 \\ 100 \\ \hline 0 \end{array}$$

**Part II:** For these questions, show your work and write your final answer in the space provided.

5. (2 points) Simplify the following fraction. Write your answer as a mixed number.

$\frac{64}{56}$

$1\frac{1}{7}$

short version:

$\frac{64}{56} = \frac{8\times 8}{8\times 7} = \frac{8}{7} = 1\frac{1}{7}$

longer version:

$\frac{64}{56} = \frac{2\times 32}{2\times 28} = \frac{2\times 16}{2\times 14} = \frac{2\times 8}{2\times 7} = \frac{8}{7} = 1\frac{1}{7}$

6. (6 points) Add or subtract as indicated. Simplify when possible.

(a) $\frac{2}{3} + 2\frac{3}{4}$

$\frac{41}{12}$

$\frac{2}{3} + 2\frac{3}{4} = \frac{2}{3} + \frac{11}{4} = \frac{2}{3}\left(\frac{4}{4}\right) + \frac{11}{4}\left(\frac{3}{3}\right) = \frac{8}{12} + \frac{33}{12} = \frac{41}{12}$

LCD = 12

or $3\frac{5}{12}$

(b) $\frac{5}{12} + \frac{17}{18} - \frac{1}{4}$ $= \frac{5}{12}\left(\frac{3}{3}\right) + \frac{17}{18}\left(\frac{2}{2}\right) - \frac{1}{4}\left(\frac{9}{9}\right)$

$= \frac{15}{36} + \frac{34}{36} - \frac{9}{36}$

$= \frac{40}{36}$

$= \frac{10\times 4}{9\times 4}$

$= \frac{10}{9}$

$\frac{10}{9}$

(or $1\frac{1}{9}$)

LCD:

$12 = 2\times 2\times 3$

$18 = 2\times 3\times 3$

$4 = 2\times 2$

so LCD $= 2\times 2\times 3\times 3 = 36$

7. (5 points) Multiply or divide as indicated. Simplify when possible.

(a) $\frac{15}{24} \times \frac{8}{9}$ $= \frac{5 \times 3}{8 \times 3} \times \frac{8}{9} = \frac{5}{9}$ $5/9$

(b) $\frac{\frac{5}{6}}{2\frac{1}{2}}$ $= \frac{5/6}{5/2}$ $1/3$

$= \frac{5}{6} \times \frac{2}{5}$

$= \frac{5}{2 \times 3} \times \frac{2}{5} = \frac{1}{3}$

8. (5 points) Add, subtract, multiply, or divide as indicated. Leave your answer in decimal form. Do not round your answer.

(a) $128.53 - 92.9$ $35.63$

$$\begin{array}{r} {}^{7} \\ 128.53 \\ -\ 92.9 \\ \hline 35.63 \end{array}$$

(b) $1.681 \div 2.05$ $= \frac{1.681}{2.05}\left(\frac{100}{100}\right) = \frac{168.1}{205}$ $0.82$

$$205\overline{)168.1}$$

$$\begin{array}{r} .82 \\ 205\overline{)168.1} \\ 1640 \\ \hline 410 \\ 410 \\ \hline 0 \end{array}$$

9. (2 points) What percent of 40 is 24?

60%

$$\frac{24}{40} = \frac{6\times 4}{10\times 4} = \frac{6}{10} = 0.6 = 60\%$$

10. (2 points) While playing hockey, Kirsten attempted 120 shots on goal this season. If 15% of her shots were successful, how many goals did she score? Write a concluding sentence for your answer.

goals scored = 15% of 120
= 0.15 × 120
= 18

120
0.15
600
120
18.00

Kirsten scored 18 goals.

11. (3 points) Sanjay wants to replace his old deck. The deck is 8.5 ft by 14 ft. If the new decking costs $6.20 per square foot, how much will it cost Sanjay to replace the deck? Write a concluding sentence for your answer.

area of deck = length × width
= 8.5 × 14
= 119 $ft^2$

8.5
14
340
85
119.0

total cost = cost/$ft^2$ × area
= 6.20 × 119
= $737.80

119
6.2
238
714
737.8

Sanjay's new deck will cost $737.80