ALEKS® Exam II A Review #1

Beginning and Intermediate Algebra Combined / Mat 103A/B Fall 2015 – P004 (Prof. Stalder)

Student Name/ID:

1. Evaluate.

$$4 + 2 \cdot 6^2$$

2. Divide. Write your answer in simplest form.

$$\frac{9}{16} \div \frac{7}{10}$$

3. Evaluate.

$$\frac{5}{6} + \frac{1}{3} \div \frac{6}{7}$$

Write your answer in simplest form.

4. Divide.

$$9.89 \div 0.86$$

5. Evaluate.

$$\left(1 - 2^3\right)^2 + 5 \cdot 4$$

6. The price of a notebook was $\$3.70$ yesterday. Today, the price fell to $\$3.20$. Find the percentage decrease. Round your answer to the nearest tenth of a percent.

7. Divide.

$$\left(3x^4 - 9x^3 - 4 + 11x^2\right) \div \left(3x^2 - 1\right)$$

Write your answer in the following form: Quotient $+ \dfrac{\text{Remainder}}{3x^2 - 1}$.

$$\frac{3x^4 - 9x^3 - 4 + 11x^2}{3x^2 - 1} = \square + \frac{\square}{3x^2 - 1}$$

8. Simplify as much as possible.

$$4x\sqrt{27u^3} - u\sqrt{75ux^2}$$

Assume that all variables represent positive real numbers.

9. Simplify.

$$\sqrt{\frac{y^{10}z^9}{2}} \cdot \frac{\sqrt{8x^7}}{\sqrt{x^5y^6z^9}}$$

Assume that all variables represent positive numbers.

10. Rationalize the denominator and simplify.

$$\frac{\sqrt{7}}{\sqrt{3}}$$

11. Factor by grouping.

$$ux - 7x - 3u + 21$$

12. Factor.

$$y^2 - 10y + 16$$

13. Factor.

$$3y^2 - 4y - 20$$

14. Factor.

$$4 - 25w^2$$

15. Simplify.

$$\frac{u^2 + 3u - 28}{32 - 2u^2}$$

16. Write $\dfrac{7}{16}$ as a decimal.

17. Follow the instructions below.

(a) Rewrite the decimal in the sentence below as a percentage. In a recent poll, 0.244 of the people surveyed were in favor of the new law.	Percent: $\%$
(b) Rewrite the percentage in the sentence below as a decimal. The model was 4% of the size that the original was.	Decimal:

18. Simplify.

$$-6x - 2(-4y + 2x) - 5y$$

19. Write inequalities to represent the situations below.

The cargo of the truck weighs no more than 2,300 pounds.
Use **w** to represent the weight (in pounds) of the cargo.

The temperature inside the lab refrigerator is less than 40 °F.
Use **t** to represent the temperature (in °F) of the refrigerator.

20. Subtract.

$$-\frac{5x-6y}{4x}-\frac{3x+11y}{4x}$$

Simplify your answer as much as possible.

21. Multiply.

$$(-3+6i)(-4+3i)$$

Write your answer as a complex number in standard form.

22. Multiply. Write your answer as a fraction in simplest form.

$$\frac{4}{5}\times\frac{10}{3}$$

23. Multiply.

$$\begin{array}{r} 6\,3.9 \\ \times\ 0.3\,7 \\ \hline \end{array}$$

24. Find the greatest common factor of these two expressions.

$$16y^4u^6v^2 \text{ and } 24u^8v^7$$

25. Multiply.

$$\frac{2y}{3a} \cdot \frac{9ay}{10y^5}$$

Simplify your answer as much as possible.

26. Rationalize the denominator and simplify.

$$\frac{-9}{2\sqrt{x}-3}$$

Assume that the variable represents a positive real number.

27. Evaluate.

$$16 + 6^2 \div 4$$

28. Evaluate the following expression.

$$36 \div \left[(19 - 11) \times 5 - 31 \right]$$

29. Evaluate.

$$\frac{3}{4} - \frac{1}{6} \div \frac{2}{5}$$

Write your answer in simplest form.

1. 76

2. $\dfrac{45}{56}$

3. $\dfrac{11}{9}$

4. 11.5

5. 69

6. $13.5\,\%$

7.
$$\dfrac{3x^4 - 9x^3 - 4 + 11x^2}{3x^2 - 1}$$
$$= x^2 - 3x + 4 + \dfrac{-3x}{3x^2 - 1}$$

8. $7ux\sqrt{3u}$

9. $2y^2 x$

10. $\dfrac{\sqrt{21}}{3}$

11. $(u-7)(x-3)$

12. $(y-2)(y-8)$

13. $(y+2)(3y-10)$

14. $(2+5w)(2-5w)$

15. $-\dfrac{u+7}{2(4+u)}$

16. 0.4375

17.

	Percent:
(a) Rewrite the decimal in the sentence below as a percentage. In a recent poll, 0.244 of the people surveyed were in favor of the new law.	24.4%
(b) Rewrite the percentage in the sentence below as a decimal. The model was 4% of the size that the original was.	Decimal: 0.04

18. $-10x+3y$

19. **The cargo of the truck weighs no more than 2,300 pounds.**
Use **w** to represent the weight (in pounds) of the cargo.

$w \le 2{,}300$

The temperature inside the lab refrigerator is less than 40 °F.
Use **t** to represent the temperature (in $^\circ\mathrm{F}$) of the refrigerator.

$t < 40$

20. $\dfrac{-8x-5y}{4x}$

21. $-6-33i$

22. $\dfrac{8}{3}$

23. 23.643

24. $8u^6v^2$

25. $\dfrac{3}{5y^3}$

26. $\dfrac{-18\sqrt{x}-27}{4x-9}$

27. 25

28. $36 \div \left[\left(19-11\right)\times 5-31\right]=4$

29. $\dfrac{1}{3}$