Multiplication with negative numbers

- When you multiply two integers with the **same signs**, the result is always **positive**. Just multiply the absolute values and make the answer positive.

$$Positive\ x\ positive\ =\ positive \quad 3\ x\ 2\ =\ 6$$
$$Negative\ x\ negative\ =\ positive\ (-3)(-2)\ =\ 6$$

- When you multiply two integers with **different signs**, the result is always **negative**. Just multiply the absolute values and make the answer negative.

$$Positive\ x\ negative\ =\ negative\ (3)(-2)\ =\ -6$$
$$Negative\ x\ positive\ =\ negative\ (-3)(2)\ =\ -6$$

Division with negative numbers

- When you divide two integers with the **same sign**, the result is always **positive**. Just divide the absolute values and make the answer positive.

$$Positive\ \div\ positive\ =\ positive\ \ 8 \div 4 = 2\ \ or\ \ \frac{8}{4} = 2$$
$$Negative\ \div\ negative\ =\ positive\ \ (-8) \div (-2) = 4\ \ or\ \ \frac{-8}{-2} = 4$$

- When you divide two integers with **different signs**, the result is always **negative**. Just divide the absolute values and make the answer negative.

$$Positive\ \div\ negative\ =\ negative\ 8 \div (-4) = -2\ \ or\ \ \frac{8}{-4} = -2$$
$$Negative\ \div\ positive\ =\ negative\ (-8) \div 4 = -2\ \ or\ \ \frac{-8}{4} = -2$$

Section 1.3: Multiplication and division with signed numbers Chapter 1: Introduction to Algebra

#1 – 24: Simplify

1) $(5)(-4)$ 2) $(7)(-3)$ 3) $-5 \bullet 6$ 4) $-8 \bullet 4$

5) $(-6)(-7)$ 6) $(-4)(-3)$ 7) -2×-4 8) -7×-8

9) $\frac{24}{-6}$ 10) $\frac{36}{-3}$ 11) $\frac{-14}{2}$ 12) $\frac{-40}{8}$

13) $\frac{-10}{-2}$ 14) $\frac{-55}{-11}$ 15) $\frac{-16}{-8}$ 16) $\frac{-60}{-10}$

17) $-20 \div 4$ 18) $-14 \div 7$ 19) $-28 \div -7$ 20) $-64 \div -8$

21) $6 \div -2$ 22) $42 \div -7$ 23) $-\frac{10}{2}$ 24) $-\frac{34}{17}$

25) A typical glacial ice sheet moves about 25 cm per day. At this rate how far will it move in 10 days?

26) Sara hiked down a mountain for 2 hours. Each hour, her elevation decreased by 50 meters. Compute her change in elevation in meters relative to her starting point.

27) A baby gained 9 ounces per month for 5 months. Find the baby's total change in weight relative to her original weight.

28) A coastal redwood tree grows about 5 feet per year for the first 6 years of its life. How many feet will a coastal redwood tree grow during its first 6 years of life?

29) Leslie bought coffee 20 days in March. She spent 7 dollars each time she visited the store. Determine how much she spent for coffee in March.

30) Mike filled his gas tank up twice per week last February. He spent $\$60$ each fill up. Determine how much Mike spent for gas in February. (Assume there were 4 weeks in February.)

31) Jorge bikes to school each day. If he can travel 30 miles in 2 hours, how fast does he travel in one hour?

32) Mike's truck can travel 400 miles on 20 gallons of gas. How far can he travel on one gallon of gas?

33) Yvi purchased a total of 384 diapers. If there were 48 diapers per package. How many packages of diapers did Yvi buy?

34) Ramen can be purchased in multi-packs which contain 24 individual ramen packages. A day care has 264 individual ramen packages that were all purchased in multi-packs. How many multi-packs were purchased?

35) Marcella grew artichokes in her garden. Last year, she grew 6 pounds of artichokes. This year, she grew 7 times last year's amount plus an additional 8 pounds. How many pounds of artichokes did Marcella grow this year?

36) A girl scout sold 200 boxes of cookies last year. This year, she sold 4 less than 3 times the amount she sold last year. How many boxes of cookies did she sell this year?

37) The average cost of a new car was about $\$15{,}000$ in 1990. The average cost today is twice this amount plus $\$8{,}000$. What is the average cost of a new car today?

38) The average cost of a college textbook was $\$20$ thirty-five years ago. The average cost today is 10 less than 8 times the amount it cost thirty-five years ago. What is the average cost of a college textbook this year?