

Exercise 2.2

$$1) \frac{2}{3} \cdot \frac{1}{5} = \boxed{\frac{2}{15}}$$

$$2) -\frac{2}{5} \cdot \frac{1}{3} = \boxed{-\frac{2}{15}}$$

$$3) \frac{7}{9} \cdot \frac{4}{5} = \boxed{\frac{28}{45}}$$

$$4) -\frac{4}{5} \cdot -\frac{1}{2} = \frac{4}{5 \cdot 2} = \boxed{\frac{2}{5}}$$

$$5) \frac{9}{11} \cdot -\frac{2}{3} = -\frac{9 \cdot 2}{11 \cdot 3} = -\frac{3 \cdot 2 \cdot 3}{11 \cdot 3} = \boxed{-\frac{6}{11}}$$

$$6) \frac{7}{12} \cdot \frac{3}{14} = \frac{7 \cdot 3 \cdot 1}{4 \cdot 3 \cdot 7 \cdot 2} = \frac{7}{7} \cdot \frac{3}{3} \cdot \frac{1}{4 \cdot 2} = \boxed{\frac{1}{8}}$$

$$7) \frac{4}{5} \cdot -\frac{10}{2} = -\frac{2 \cdot 2 \cdot 2 \cdot 5}{1 \cdot 2 \cdot 5} = -\frac{2 \cdot 2 \cdot 2 \cdot 5}{1 \cdot 2 \cdot 5} = \boxed{-4}$$

$$8) -\frac{5 \cdot 1}{2 \cdot 5 \cdot 2} = -\frac{1}{2 \cdot 2} \cdot \frac{5}{5} = \boxed{-\frac{1}{4}}$$

$$9) -\frac{15}{2} \cdot -\frac{2}{5} = \frac{3 \cdot 5 \cdot 2}{5 \cdot 2} = \boxed{\frac{3}{1}}$$

$$10) \frac{12 \cdot 20}{35 \cdot 3} = \frac{4 \cdot 3 \cdot 4 \cdot 5}{7 \cdot 5 \cdot 3} = \frac{4 \cdot 4 \cdot 3 \cdot 5}{7 \cdot 3 \cdot 5} = \boxed{\frac{16}{7}}$$

$$11) -\frac{32}{7} \cdot \frac{21}{20} = -\frac{8 \cdot 4 \cdot 7 \cdot 3}{7 \cdot 4 \cdot 5} = -\frac{8 \cdot 3 \cdot 4 \cdot 7}{5 \cdot 4 \cdot 7} = \boxed{-\frac{24}{5}}$$

$$12) -\frac{10}{3} \cdot \frac{1}{3} = \boxed{-\frac{10}{9}}$$

$$13) -3\frac{1}{2} \cdot -\frac{2}{3} = -\frac{7}{2} \cdot -\frac{2}{3} = \frac{7 \cdot 2}{2 \cdot 3} = \boxed{\frac{7}{3}}$$

Exercise 2.2 continued

$$14) -\frac{9}{5} \cdot -\frac{10}{3} = \frac{9 \cdot 10}{5 \cdot 3} = \frac{3 \cdot 3 \cdot 2 \cdot 5}{5 \cdot 3} = \frac{3}{3} \cdot \frac{5}{5} \cdot \frac{2 \cdot 3}{1} = \boxed{6}$$

$$15) \frac{12}{5} \cdot -\frac{5}{4} = -\frac{12 \cdot 5}{5 \cdot 4} = -\frac{12}{4} = \boxed{-3}$$

$$16) 1\frac{1}{2} \cdot -4 = \frac{3}{2} \cdot -\frac{4}{1} = -\frac{3 \cdot 4}{2} = -3 \cdot 2 = \boxed{-6}$$

$$17) -2 \cdot -\frac{2}{5} = -\frac{2}{1} \cdot -\frac{2}{5} = \boxed{\frac{4}{5}}$$

$$18) -5 \cdot 3\frac{2}{7} = -\frac{5}{1} \cdot \frac{23}{7} = \boxed{-\frac{115}{7}}$$

$$19) \frac{2}{5} \div \frac{1}{3} = \frac{2}{5} \cdot \frac{3}{1} = \boxed{\frac{6}{5}}$$

$$20) -\frac{3}{7} \div \frac{2}{3} = -\frac{3}{7} \cdot \frac{3}{2} = \boxed{-\frac{9}{14}}$$

$$21) \frac{7}{11} \div \frac{2}{5} = \frac{7}{11} \cdot \frac{5}{2} = \boxed{\frac{35}{22}}$$

$$22) -\frac{4}{5} \div \left(-\frac{1}{7}\right) = -\frac{4}{5} \cdot -\frac{7}{1} = \boxed{\frac{28}{5}}$$

$$23) \frac{9}{11} \div \left(-\frac{2}{3}\right) = \frac{9}{11} \cdot -\frac{3}{2} = \boxed{-\frac{27}{22}}$$

$$24) \frac{7}{3} \div \frac{35}{18} = \frac{7}{3} \cdot \frac{18}{35} \\ = \frac{7 \cdot 3 \cdot 6}{3 \cdot 7 \cdot 5} = \boxed{\frac{6}{5}}$$

Exercise 2.2 continued

$$25) -\frac{15}{2} \div \frac{10}{3} = -\frac{15}{2} \cdot \frac{3}{10} = -\frac{45}{20} = -\frac{9 \cdot 5}{4 \cdot 5} = \boxed{-\frac{9}{4}}$$

$$26) -\frac{18}{5} \div \frac{81}{20} = -\frac{18}{5} \cdot \frac{20}{81} = -\frac{2 \cdot 9 \cdot 4 \cdot 5}{5 \cdot 9 \cdot 9} = -\frac{2 \cdot 4}{9} \cdot \frac{9}{9} \cdot \frac{5}{5} \\ = \boxed{-\frac{8}{9}}$$

$$27) -\frac{10}{3} \div \frac{1}{3} = -\frac{10}{3} \cdot \frac{3}{1} = \boxed{-10}$$

$$28) -\frac{11}{5} \div -\frac{10}{3} = -\frac{11}{5} \cdot -\frac{3}{10} = \boxed{\frac{33}{50}}$$

$$29) 1\frac{3}{5} \div -2 = \frac{8}{5} \div -\frac{2}{1} = \frac{8}{5} \cdot -\frac{1}{2} = \boxed{-\frac{4}{5}}$$

$$30) -5 \div 3\frac{2}{7} = -\frac{5}{1} \div \frac{23}{7} = -\frac{5}{1} \cdot \frac{7}{23} = \boxed{-\frac{35}{23}}$$

$$31) \frac{x}{3} \cdot \frac{x}{6} = \boxed{\frac{x^2}{18}}$$

$$32) \frac{x^2}{4} \cdot \frac{6}{x} = \frac{6 \cdot x \cdot x}{4 \cdot x} = \frac{3 \cdot 2 \cdot x \cdot x}{2 \cdot 2 \cdot x} = \frac{3 \cdot x}{2} \cdot \frac{2}{2} \cdot \frac{x}{x} \\ = \boxed{\frac{3x}{2}}$$

$$33) \frac{2 \cdot 3}{x \cdot x} = \boxed{\frac{6}{x^2}}$$

$$34) A = \frac{1}{2}(10 \text{ in})(4 \text{ in}) = \boxed{20 \text{ in}^2}$$

$$35) A = \frac{1}{2}(3 \text{ ft})(5 \text{ ft}) = \boxed{\frac{15}{2} \text{ ft}^2}$$

Exercise 2.2

$$36) \quad \frac{40 \text{ oz}}{\frac{1}{2} \text{ oz}} = 40 \cdot 2 = 80 \text{ servings}$$

$$37) \quad 1 \frac{2}{3} \cdot 2 \\ = \frac{5}{3} \cdot 2 = \frac{10}{3} \text{ cups of flour}$$

$$38) \quad \frac{16 \text{ oz}}{20 \text{ people}} = \boxed{\frac{4}{5} \text{ oz / person}}$$

~~$$39) \quad 2 \frac{1}{3} \div \frac{1}{2} = \frac{7}{3} \div \frac{1}{2} = \frac{7}{3} \cdot \frac{2}{1} = \boxed{\frac{14}{3}} \text{ cups of sugar}$$~~

~~$$40) \quad 2 \frac{1}{3} \cdot \frac{1}{2} = \frac{7}{3} \cdot \frac{1}{2} = \boxed{\frac{7}{6}} \\ = 1 \frac{1}{6} \text{ cups}$$~~