

# Personal Finance: Summer Packet

Due on the first day of class

Name: \_\_\_\_\_

## Welcome to Personal Finance!

The course you're about to take is rather different than the math classes you've taken this far in your high school careers. While this is still a math class and your skills from all your previous math classes will be useful, this course is *interdisciplinary* in nature, meaning that you will be expected to use your skills from other subjects in order to succeed. I find that running Personal Finance in this way levels the playing field, since this class is often made up of students of all mathematical skill levels, who all deserve a reasonable challenge.

Like the class as a whole, this assignment is a little bit different than a traditional math summer assignment as well. For each of the math sections, I have provided an overview of the topic and a couple model problems to try to help you. Because of all the overview, this assignment is not as long as it looks! You are also welcome to use any online resource at your disposal (I especially recommend Khan Academy). If you choose to use an online resource, please indicate on which problems you used it, so I know where you had some difficulty. It's okay to get help— in fact, I expect you to in some cases— just be honest about when and where you did.

For the reading and writing component, it should be fairly straightforward. Read and mark up the article as you go, and work thoroughly. I'm a math teacher— I'm not looking for the absolute, most proper writing— but I do expect you to organize your thoughts in a clear manner and using an appropriate academic tone. You will prepare points for discussion as well as summarize your thoughts in a brief reflection.

As of right now, I am scheduled to teach both sections of Personal Finance. For me, **I plan to count the math part and article-specific questions as a series of homework grades, and the final synthesis question as a 10-point quiz grade.** However, things often change over the summer; no matter who your teacher is in the fall, assume that this assignment will count as a grade and that the content will be assessed in some way.

You must show all work to receive full credit, and work should be completed neatly and thoroughly, preferably in pencil. In the interest of saving some paper, I didn't provide a lot of room to complete this assignment, so **please work on separate sheets of paper, and attach them to this packet before submitting.** You may type and submit the reading questions, if you prefer. You will find your calculator helpful at times, but please show enough setup so I can follow your work.

If you have any questions at all over the summer, please reach out to me! My email is **rcox@theproutschool.org**. I would be happy to Zoom with you on a case-by-case basis if you're having difficulty.

Have a great summer!                      - Mr. Cox

# 1 Math content review

## 1.1 Manipulating functions

### Evaluating functions

We can think about a function as a machine with an operating system. A function  $f$  (which is the name of our machine) is a rule (operating system) relating inputs to outputs. Every input  $x$  in the *domain* must go to exactly one output  $y$  in the *range*. It's okay to have two inputs go to the same output—we can have two computer commands for the same function, for example—but we can never have one input go to two different outputs.

We typically notate our functions algebraically by the function's name and the variable it takes as an input:  $f(x)$ , for example. Then we define the rule:  $f(x) = x^2 + 1$ . So, this function's "operating system" takes every input, squares it, and adds one. It doesn't matter what we put inside. Even this is perfectly acceptable:

$$f(\quad) = (\quad)^2 + 1$$

Which, I think, shows even more clearly that whatever I plug in to  $f$  as an input is what is applied to the function's rule:

$$\begin{aligned} f(2x) &= (2x)^2 + 1 = 4x^2 + 1 \\ f(3) &= 3^2 + 1 = 10 \end{aligned}$$

We call this process *evaluating* a function.

**1-4. Let  $f(x) = 2x^2 + 3x - 5$ . Find the following, and simplify completely.**

- |             |            |
|-------------|------------|
| 1. $f(-1)$  | 2. $f(3)$  |
| 3. $f(0.5)$ | 4. $f(3x)$ |

**5-8. Let  $g(x) = \frac{1}{2x+7}$ . Find the following, and simplify completely.**

- |              |             |
|--------------|-------------|
| 5. $g(-2)$   | 6. $g(10)$  |
| 7. $g(2t+7)$ | 8. $g(t^2)$ |

### Operations with functions

For four of our operations, the rule is simple: *whatever operation is present in parentheses, do that operation between the two functions*. So, we can define addition, subtraction, multiplication, and division for functions:

$$\begin{aligned} (f+g)(x) &= f(x) + g(x) & (f-g)(x) &= f(x) - g(x) \\ (fg)(x) &= f(x) \cdot g(x) & \left(\frac{f}{g}\right)(x) &= \frac{f(x)}{g(x)}, g(x) \neq 0 \end{aligned}$$

For example, let  $f(x) = x + 1$  and  $g(x) = x^2 - 2x$ :

$$\begin{aligned}
 (f + g)(x) &= f(x) + g(x) & (f - g)(x) &= f(x) - g(x) \\
 &= (x + 1) + (x^2 - 2x) & &= (x + 1) - (x^2 - 2x) \\
 &= x^2 - x + 1 & &= 1 + 3x - x^2 \\
 \\
 (fg)(x) &= f(x) \cdot g(x) & \left(\frac{f}{g}\right)(x) &= \frac{f(x)}{g(x)} \\
 &= (x + 1)(x^2 - 2x) & &= \frac{x + 1}{x^2 - 2x} \\
 &= x^3 - x^2 - 2x & &
 \end{aligned}$$

Things get slightly more complicated when we talk about *composition* of functions, defined and notated this way:

$$(f \circ g)(x) = f(g(x))$$

Remember how we just talked about evaluating functions? This time, we're "evaluating" a function with another function. Problems 4, 7, and 8 were actually examples of function composition. I find it helpful to rewrite the problem with that substitution, so it looks like those problems, as I do below.

For example, let  $f(x) = x^2 + 5$  and  $g(x) = x - 1$ . Find  $(f \circ g)(x)$  and  $(g \circ f)(x)$ .

$$\begin{aligned}
 (f \circ g)(x) &= f(g(x)) & (g \circ f)(x) &= g(f(x)) \\
 &= f(x - 1) & &= g(x^2 + 5) \\
 &= (x - 1)^2 + 5 & &= (x^2 + 5) - 1 \\
 &= x^2 - 2x + 1 + 5 & &= x^2 + 4 \\
 &= x^2 - 2x + 6 & &
 \end{aligned}$$

**9-11.** For each pair of functions  $f$  and  $g$ , perform the indicated operation, and evaluate if required. Answers should be simplified fully.

9.  $f(x) = x^2 + 1$ ,  $g(x) = 2x - 3$

a.  $(f + g)(x)$

b.  $(fg)(x)$

c.  $(f \circ g)(x)$

10.  $f(x) = x^2 + 2x - 1$ ,  $g(x) = 2x$

a.  $(f \circ g)(x)$

b.  $(g \circ f)(x)$

c.  $\left(\frac{f}{g}\right)(x)$

11.  $f(x) = x^2 + 1$ ,  $g(x) = 2x - 3$

a.  $(f + g)(0)$

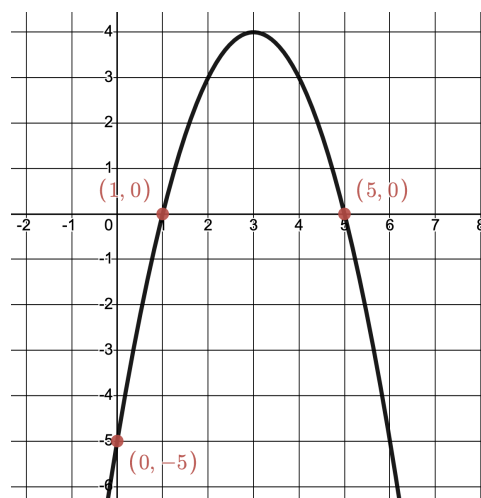
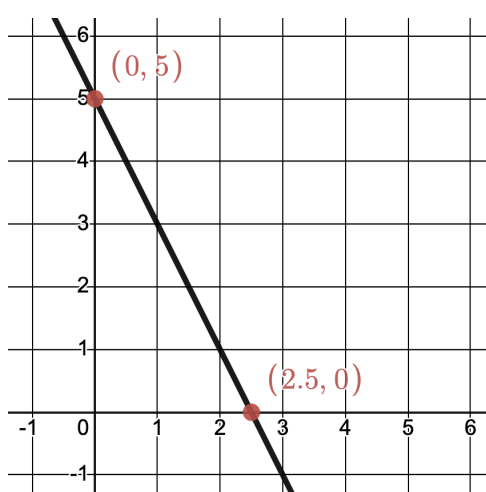
b.  $(fg)(2)$

c.  $(f \circ g)(-3)$

## 1.2 Analyzing functions and their graphs

### Interpreting intercepts

In application problems, the *intercepts* can be useful tools for interpreting data in a real-world context. The *x-intercept* is the point  $(x, 0)$  where the graph touches or crosses the  $x$ -axis. Similarly, the *y-intercept* is the point  $(0, y)$  where the graph touches or crosses the  $y$ -axis. In the graphs below, the  $x$ - and  $y$ -intercepts have been labeled for you.



To find the  $y$ -intercepts, evaluate  $f(0)$ . To find the  $x$ -intercepts, solve the equation  $f(x) = 0$ . In other words, **plug in 0 for the other variable and solve**. For example, for the equation  $y = 3x - 1$ :

|                 |                 |                 |              |
|-----------------|-----------------|-----------------|--------------|
| $x$ -intercept: | Let $y = 0$     | $y$ -intercept: | Let $x = 0$  |
| $0$             | $= 3x - 1$      | $y$             | $= 3(0) - 1$ |
| $1$             | $= 3x$          | $y$             | $= -1$       |
| $x$             | $= \frac{1}{3}$ |                 |              |

So, the intercepts are  $\left(\frac{1}{3}, 0\right)$  and  $(0, -1)$ . This can also be done on your graphing calculator, and we'll talk about that (and applications) during the year.

**12-14.** For each of the functions given, find all  $x$ -intercepts and  $y$ -intercepts.

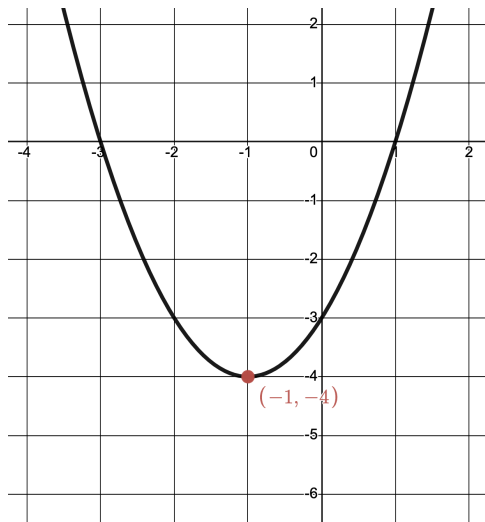
12.  $y = 6x + 7$

13.  $3x - 4y = 10$

14.  $y = x^2 - 4$

## Maxima or minima of a parabola

*Extrema*, the general term for maxima or minima, are also useful in application problems. This year in particular, we'll talk about cases where businesses look for ways to maximize their profit or minimize their costs. In the graph below, the minimum of the parabola is shown.



Two notes:

- There is a calculus method for finding local extrema that some of you in IB may have learned (or will learn). I won't teach that in this class but you're welcome to use it if you know.
- For now, we'll keep the numbers simple, as I haven't taught you the method on your calculator yet. We'll spend a bunch of time on this though during the first unit.

For a quadratic equation in standard form  $f(x) = ax^2 + bx + c$ , the  $x$ -coordinate of the max/min is given by  $x = -\frac{b}{2a}$ . Then, substitute that value into the function to find the  $y$ -coordinate. Hence, for  $y = 2x^2 - 3x + 1$ , the minimum point is  $\left(\frac{3}{4}, -\frac{1}{8}\right)$ .

**15-18. Find the exact maximum or minimum value for each of the functions given.**

15.  $y = 3x^2 + 2x - 3$

16.  $f(x) = 2 - 4x - x^2$

17.  $y = x^2 + 3x - 5$

18.  $g(x) = 3 + x - x^2$

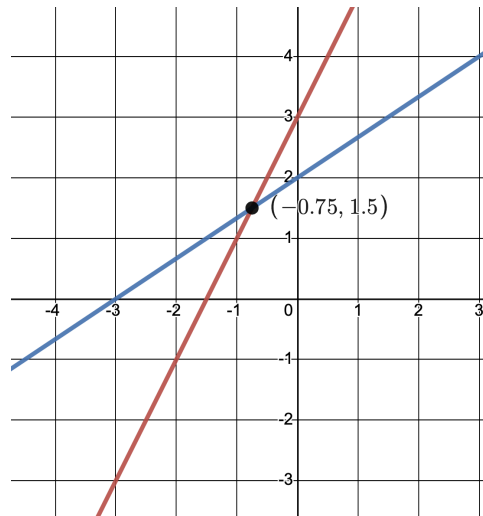
## Finding the intersections of graphs

Two graphs *intersect* one another when their function values are equal. Again, there's a calculator way to do this, but we'll focus on solving them by hand for now. Simply set the functions equal to each other and solve for  $x$ .

For example, let  $f(x) = 2x + 3$  and  $g(x) = 3x - 5$  and find their intersection:

$$\begin{aligned} 2x + 3 &= 3x - 5 \\ -x + 3 &= -5 \\ -x &= -8 \\ x &= 8 \end{aligned}$$

Then, substitute the  $x$ -value into either function to find the  $y$ -coordinate.  $f(8) = g(8) = 19$ , so the point of intersection here is  $(8, 19)$ . Using different functions, an intersection looks like this:



**19-21. For each pair of functions, determine the point(s) of intersection.**

19.  $\begin{cases} y = 3x + 5 \\ y = 2x - 7 \end{cases}$

20.  $\begin{cases} y = \frac{1}{2}x + 1 \\ y = 3 - x \end{cases}$

21.  $\begin{cases} y = 2x + 5 \\ y = 2x^2 + 1 \end{cases}$

### 1.3 Writing and using algebraic expressions

I get it...word problems can be challenging. Unfortunately, they are an important part of Personal Finance. Let's talk about a couple helpful tips:

- Write down any important details off to the side or in the answer space for a problem.
  - Some teachers tell students to underline or circle within the paragraph, but that doesn't fix the real problem, which is having to pick through the paragraph when you need information. **Get it out of the paragraph.**
- As you identify information, assign logical variables to the information you isolate. ( $C$  for cost,  $t$  for time, etc.)
- Sort your information into what was *given*, and what your *goal* is.

There's not much to demonstrate here, so try the following problems.

**22-25. Write an expression or equation that represents the problem. Then, solve using the given conditions.**

22. Zoe is buying tickets for an upcoming performance of *The Addams Family*. Ticketmaster charges her \$74.95 per ticket, plus a flat \$32.08 processing fee for the order. Write an equation for the cost  $C$  of buying  $t$  tickets, then calculate how much it will cost Zoe to buy 4 tickets.
23. Ryan works for Graphic Expressions and is assessing the cost of producing senior class t-shirts. Suppose that it costs Graphic Expressions \$2.50 to buy each shirt plus \$18.14 to run the printing machine for the order. Write an equation for the expense  $E$  of producing  $s$  shirts, then calculate how much it will cost to produce 102 shirts.
24. Mia is rewatching *Stranger Things* before Season 5 is released. For the sake of this problem, assume that Netflix releases one episode of *Stranger Things* per week (or 1 episode every 7 days). Mia watches 3 episodes per day to catch up. At the time of writing, there are 34 episodes out.
  - (a) Write an expression for the number of episodes  $n$  available  $d$  days since Mia started watching.
  - (b) Write an expression for the number of episode  $n$  Mia has watched in  $d$  days.
  - (c) After how many days will Mia be caught up?
25. Broden and Josh are in a race. Suppose that Broden is running at 8 miles per hour. Josh, however, is running at 6 miles per hour, but gets a  $\frac{3}{4}$ -mile head start.
  - (a) Write an expression for the distance  $d$  that Broden covered after  $t$  hours.
  - (b) Write an expression for the distance  $d$  that Josh covered after  $t$  hours.
  - (c) After how many *minutes* does Broden catch up to Josh?

**The second part of this assignment begins on the next page.**

## 2 Talking about personal finance

For this part of the summer assignment, read the two articles attached (hyperlinks also included below). These are your copies to use, so I highly recommend marking them up by underlining or highlighting important points and making notes in the margins with any questions or thoughts you have as you're reading. (This is also good practice for skills that will be useful when you get to college.) Then, answer the following questions.

- For the questions about each individual article, just jot down some bullet points about your thoughts, reactions, and questions while reading. We'll use these as discussion points in class.
- For the synthesis question at the end, answer this in more formal academic writing. Use full sentences, paragraphs, and logical organization to form your argument. This should be about 1.5-2 pages long (double-spaced), or about three paragraphs, because you are expected to talk about both articles in detail, plus draw some connections.

### Forbes article

Article link: "How to get better at talking about money" (Bobby Hoyt, *Forbes*, 13 August 2024)

1. Why is it so hard to talk about money?
2. Why is a class like Personal Finance so important?

### CNET article

Article link: "How safe are banking apps, really?" (Dashia Milden and David McMillin, CNET, 16 April 2024)

1. So much of this feels like common sense, especially to a generation that may often take the reliance on technology for granted. Do you think reviewing these tips is still important for you, or is this article directed at a different audience? Why?
2. In a 2023 study from Pew Research Center, 67% of Americans are confused about how companies collect users' data, but 56% of Americans frequently skip over the terms and conditions when registering a new account. (Source) We know it's important to protect our personal information online, but it seems like society as a whole isn't particularly good at it. What are some ways to help others improve the security of their digital footprint?

### Synthesis

1. In a world that is becoming increasingly more reliant on technology, it's more important than ever to be aware of your own finances and think critically about them. How can we use the digital resources available to us in order to open up conversations about money, so we can become more informed (and help others become more informed) about our finances?

# How To Get Better At Talking About Money

**F** [forbes.com/sites/bobbyhoyt/2023/08/17/how-to-get-better-at-talking-about-money](https://forbes.com/sites/bobbyhoyt/2023/08/17/how-to-get-better-at-talking-about-money)

Bobby Hoyt

August 17, 2023



Male on phone outside working on his computer.

Chase Chappell

A recent study from Empower reports that 62% of people simply don't talk about money. And 43% would rather talk about politics, while 32% prefer to talk about death over money. Even in a day and age when we're comfortable sharing basically every aspect of our lives on social media, our society is still really, really uncomfortable talking about the Benjamins.

As much as I'd like to be surprised by studies like that, I'm really not. If anything, running this site for the past few years has taught me that most people are either afraid to talk about their financial situation or don't believe there is anyone around them to talk to about money.

While so many people don't talk about money, that same study reported that 66% believe financial conversations lead to financial freedom and building generational wealth. Additionally, 62% of respondents say it can help improve the gender wage gap, and 56% say that open money conversations can improve workplace transparency.

## PROMOTED

If the majority of people believe we should talk about money and see the benefits, then how do we get better at doing it?

## Here Are 7 Steps To Getting Better at Talking About Money:

### 1. Understand That Money Doesn't Dictate How Awesome You Are

A good portion of our society equates wealth with intelligence. If someone's moved up the corporate ladder, can start a successful business, or retire early, they must be brilliant. Right?

The reality is that some of the most intelligent people I know have struggled to build a business or are buried in debt. Not only that, I'd much rather hang out with them over some of the wealthier people I know. At the same time, I know people who've found "success," but it's more luck than smarts.

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By signing up, you agree to receive this newsletter, other updates about Forbes and its affiliates' offerings, our Terms of Service (including resolving disputes on an individual basis via arbitration), and you acknowledge our Privacy Statement. Forbes is protected by reCAPTCHA, and the Google Privacy Policy and Terms of Service apply.

Judging yourself based on your bank account or credit score isn't fair because money is a tool, not a character trait. Once you understand that, it makes it easier to avoid some of the negative stigmas surrounding financial struggles.

## 2. Prepare Yourself for Getting Your Feelings Hurt

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Now with all of that said, when you first start talking about money, it's easy to get defensive when people try to give you advice.

I can't even tell you how many times I've seen people snap at each other for the smallest things when it comes to personal finance conversations. I've definitely gotten negative feedback for my opinions about paying off debt or saving money.

Cars are a great example. For whatever reason, people see cars as some type of weird metallic extension of themselves. Back when I was still driving a 14-year-old SUV, my story went viral because it didn't match my income. People thought I was making a statement judging their decisions to drive newer cars and then basically called me an idiot for not driving a more expensive car.

Being defensive like that is natural, though, especially with personal finance. We're all conditioned to feel like any perceived critique of our money-handling skills is a direct attack on us personally.

When I first started having conversations with my mentors, back when I was \$40K in student loan debt, I would get defensive about facts. It hurts to be told that you have a negative net worth. It stings when someone says you can't afford the things that you want yet.

Eventually, though, that negative stuff wears off. You realize the responses have more to do with how others feel about their financial situation, not yours. Once you reach this point, you can talk about money without all of the emotion.

## 3. Find a Mentor

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The one thing in life that you can't put a price on is wisdom. Unfortunately, when you're young, you have to find it elsewhere.

My mentor, Mike, has had a huge impact on my personal and professional life. He took me under his wing and has taught me a ton of money lessons over the years. Through Mike, I met my other mentor David, who is a commercial real estate investor.

Over the past few years, I've been fortunate enough to hang out with these two very successful people and listen to some pretty interesting personal finance discussions. There were plenty of times when I watched them go back and forth about how to invest, how to run a business, when you should pay cash for things and when you shouldn't, etc.

I learned how they think about risk, making decisions, ROI, and so on, and I applied the same strategies to my own finances and business. No one was telling me how to do things, but I learned how to approach big decisions.

Obviously, mentors aren't just waiting around for you to find them. Keep it simple and start by looking for successful people in your inner circle of friends and family, and then reach out to them and see if they'll grab a coffee with you just to talk.

## 4. Listen More Than You Speak

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What's the point of having mentors if you don't listen?

I think one of the hardest things to do in life is to be still and actually listen to what other people say, especially when it comes to personal finance.

We all have egos, right? There's nothing wrong with having your own opinion on things, but if you're more eager to share yours than hear someone else's, that's a problem.

If you don't get anything else out of this article, understand that listening to other people's wisdom can be the key to success in anything you do.

## 5. Consume More Personal Finance Content

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There's no shortage of personal finance content these days, from social media, podcasts, YouTube, books, and blog posts. It's easier to access than ever, and I've noticed a trend toward more authentic personal finance content, which I love.

People are sharing real stories about money and not glossing over the difficult parts. They're telling you exactly what they've gone through and what they've done to move forward. Personally, I love this shift because it encourages discussion, and people realize that they're not the only ones who have ever struggled.

It goes beyond knowing you're not alone in your financial struggles—you can learn strategy, best practices, how to approach tough decisions, and how to plan for the future.

## 6. Join a Group

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I know I'm biased, but I think my M\$M Facebook group is one of the best private (and free) personal finance communities. Every day I see people share their unbelievably cool personal finance wins, and people constantly talk about how the group has changed their entire approach to personal finance.

There's a little bit of everything related to personal finance—paying off debt, investing, early retirement, financial independence, budgeting, and saving money, just to name a few.

It's really designed to be a place where people who don't feel very comfortable talking about personal finance can find a group of people who won't judge them or talk down to anyone (we are very strict on those things).

My Facebook group isn't the only one out there. There are more niche groups for things like FIRE (Financial Independence, Retire Early), female entrepreneurs, real estate investing, budgeting for families, and so on. There are even local meet-up groups if you prefer in-person conversations.

The point is, there's something for everyone and no reason not to get involved.

## 7. Spread the Word

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Now, it's going to take time to master the steps that I've laid out, but once you do, try to spread the word in some way. The only reason I got excited about personal finance is that someone took me under their wing and showed me information that I didn't even know was out there. As you evolve in your own personal finance journey, you could be the same thing for someone else.

I'm not saying that you need to talk to all of your friends and family members about their finances, but if you see an opportunity to get someone excited about personal finances, take a shot and see what happens.

At the end of the day, money is a tool. It's a big part of our daily lives, and we should feel comfortable talking about it in the same way we talk about food, TV, music, and anything we interact with on a daily basis.

Follow me on Twitter or LinkedIn. Check out my website or some of my other work here.



Bobby Hoyt

Bobby is a former high school band director who

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# How Safe Are Banking Apps, Really?

[cnet.com/personal-finance/banking/advice/are-banking-apps-safe](https://www.cnet.com/personal-finance/banking/advice/are-banking-apps-safe)

April 16, 2024

Money Banking

Article updated on Apr 16, 2024

Most banking apps are safe. But taking these precautions will help protect your financial information.

Our Experts



Written by ,

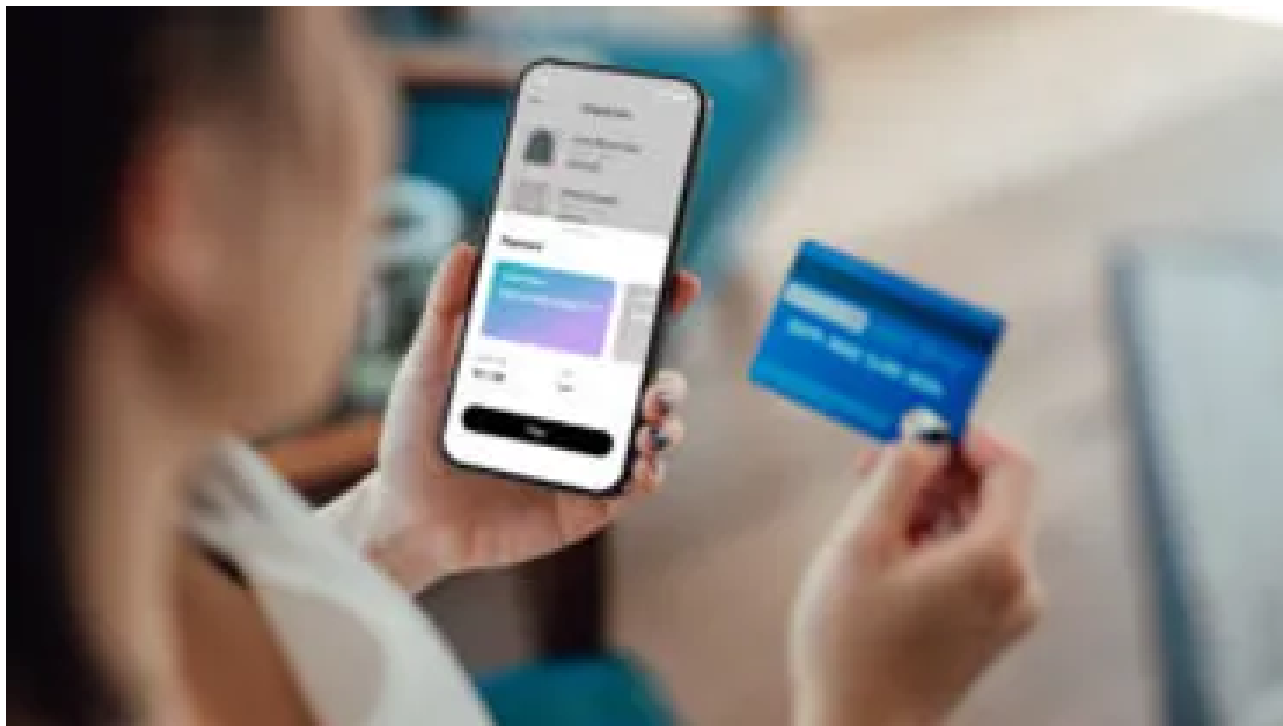
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Oscar Wong / Getty Images

Mobile banking apps make it easier to manage your money. You can do tasks like view your account balance, deposit checks and transfer money between accounts from anywhere at any time -- no need to visit a physical branch during specific hours. But with something as sensitive as your financial information, it's natural to wonder if you're putting yourself at risk by banking via an app.

Fortunately, mobile banking apps are actually quite safe, and banks are constantly working to upgrade their digital tools and stay one step ahead of online criminals devising ways to steal your valuable data. Read on to learn what banks do to protect your sensitive information and what you can do to make it even safer.

## Are mobile banking apps safe?

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Mobile banking apps have a range of built-in security features to put fences around your information that are difficult for hackers to scale. And this isn't limited to the biggest banks with the resources to invest in the latest and greatest tech. Even some smaller credit unions and community banks use tools like biometric authentication -- using physical characteristics like your fingerprint or face -- to limit your account access to the only person who should be able to get in: you.

Many banks also use multifactor authentication, which requires a second form of identification such as a text message to your phone to prove it's really you attempting to access the account.

Many banks also use end-to-end encryption, which prevents anyone from seeing your information while it's being transmitted.

## How hackers can gain access to your banking information

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There are several methods bad actors may use to try to obtain your personal or financial information.

- **Data breaches:** While banks don't make as many headlines for massive data breaches as retailers, they still happen. For example, Flagstar Bank has suffered three data breaches in three years, and Bank of America quietly informed around 57,000 customers that some very valuable information -- including Social Security Numbers and account numbers -- may have been leaked in a recent data breach. While that isn't directly related to their mobile app experiences, the implications are similar: It is possible for someone to steal your money or your identity by getting ahold of your banking information.
- **App-based banking trojans:** Once downloaded, these malicious programs can gain access to your banking information. And they can be tricky to spot. Cybercriminals may send you a text or email that looks legitimate, along with a link. Don't click links from any unfamiliar senders. If you can't tell if a notification is legitimate, contact your bank to find out.
- **Fake banking apps:** Scammers also create fake apps that look just like your bank's mobile app to trick you into downloading them and entering your login information. Once you enter your information, scammers have access to your account. You should only download a banking app from your bank's website to ensure you're using the correct one.
- **Unprotected Wi-Fi networks:** If you're using free Wi-Fi at a cafe, airport or any other public location, you're putting yourself at risk. Hackers can tap into these networks and access your devices. Avoid opening your mobile banking app while connected to any of these networks. You're better off waiting to look at your account until you're on your home network.
- **Phishing websites and messages:** Scammers may also send you a text or email prompting you to click a link and enter your credit card or banking information. In these messages, scammers may pretend to be your bank or someone you know requesting payment for an unpaid bill. As with banking trojans, treat these messages with suspicion and contact your bank to verify if they're legitimate.

## How to keep your data safe when using a banking app

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Banks invest in upgrades to regularly identify vulnerabilities in their apps, but keeping your mobile banking data safe isn't just up to them. You can help protect your information by following these tips.

### Create strong and unique passwords

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Research from Keeper Security shows that 75% of people aren't taking the proper precautions to create tough-to-crack passwords. And no, "1234" isn't a strong password, and neither is your last name or any other easily identifiable words. Your password should be complicated -- ideally, a mix of uppercase and lowercase letters, numbers and special characters.

Also, be sure to create different passwords for different accounts. This way, if your password for one account falls into the wrong hands, scammers can't use it to get into your bank account. While that may seem like more information to juggle, you can use a password manager to keep it organized.

### Protect your login credentials

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A strong password is only useful if you don't share it with anyone. This is another area where a password manager can help. It can help you develop strong passwords and encrypt them on your phone, along with any other devices, such as your computer and your tablet.

Also, make sure you log out of a banking app when you're done using it. Many banking apps have an automatic logout feature that activates after a few minutes of inactivity.

## Set up multifactor authentication

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Multifactor authentication is the digital equivalent of presenting multiple forms of ID in person. When you provide both a passport and a utility bill, for example, a company can feel more secure that it's really you than if you just showed one form of ID.

Many big banks let you enable two-factor authentication, which can strengthen your defense against scammers. For example, you might enter your information to log into your app, then receive a text message with a one-time code to verify your identity. It's not foolproof, as there are crafty criminals who figure out ways to work around multifactor authentication, but it is worth the extra step.

## Keep your app updated

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One way your bank keeps your mobile data safe is by monitoring new and existing cyber threats and releasing software updates to strengthen its app's security measures. To make sure you're protected by these measures, make sure your phone has the latest version of software installed for your bank's app. You can do this by manually updating your app through your app store's settings or enabling automatic updates.

## Don't use public Wi-Fi

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Free Wi-Fi can come at a very expensive cost: An increased likelihood of someone on the same network managing to hack into your device. Never conduct banking activities on public Wi-Fi. (Ultimately, you're better off avoiding doing much of anything over a public Wi-Fi network due to heightened cybersecurity risks.)

## Don't click on suspicious links

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Most people feel confident that they can avoid email scams. After all, the story of the Nigerian prince who will pay you loads of money to help him has probably been around since you started sending emails.

However, scammers have gotten increasingly creative with ways to incentivize you to click on a link that allows them to access your information or download malware onto your mobile device. Many of them now use smishing, which sends those links to your mobile phone as a text message. Scrutinize every message that arrives on your phone, and if you have any doubts about its authenticity, don't click on it.

## Monitor your bank accounts and credit report

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No matter how vigilant you are in keeping your data safe, there are sophisticated criminals online who could find a way into your financial accounts. So, it's smart to keep a close eye on your bank accounts to watch for any unfamiliar transactions. In some cases, hackers make a small charge -- just a few dollars, for example -- to see if you spot it before they do significantly larger damage. Review your transaction history on a regular basis for any suspicious activity.

In addition, check your credit report frequently. It can help you spot potential fraud that won't ever show up in your banking app. If someone manages to open a bank account with your name and Social Security Number, this is how you can find out about the fraud and work to repair the damage.

## Bottom line

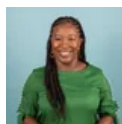
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Banking apps can make your life much easier by putting all of your money in your pocket -- literally. With an app, you can easily transfer funds, monitor account activity, deposit checks and send payments to friends without ever having to visit a branch or an ATM. In addition to that convenience, these apps deliver an even more essential benefit: security.

As long as you're taking steps to protect your data -- such as avoiding public Wi-Fi and enabling multifactor authentication -- using a banking app to manage your money is safe.

## FAQs

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